Forestry MAY, 1947

Industrial FINISHING

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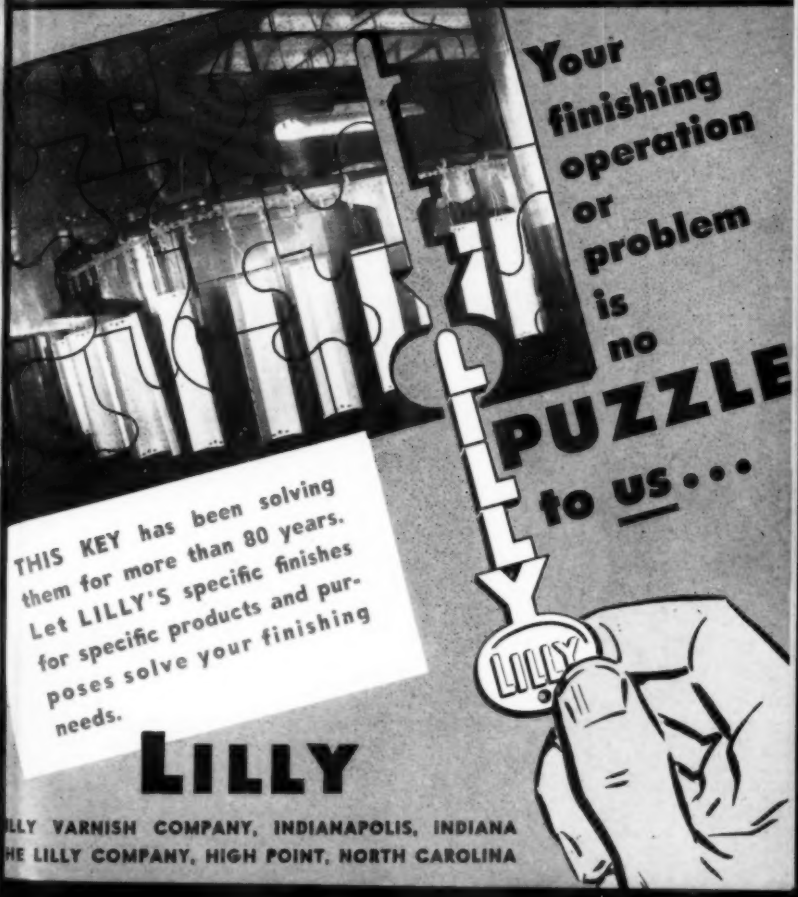
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Industrial FINISHING

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Toys for All Ages were displayed at the recent American Toy Fair in New York. Buyer attendance on opening day was 25% better than last year. Merchandise displayed was the largest in the history of the Fair, both from the standpoint of quantity and variety. Many of the new sciences such as atomic energy and electronics were featured, as well as improvements in design and construction of toys of the past. Then, of course, there were the old standbys in decorated wood and metal that most of us grew up with.

Grown-ups were not forgotten. There were games of all kinds, some of them "speculative," others of the quiz variety made popular by radio.

* * *

Christmas Throughout the Year. In an effort to dispel the idea that toys for children should be bought only once a year (in December) a permanent exhibit of toys will open early this summer at 204 Fifth Ave., New York. It will be open to merchants, educators and the public. Nothing will be sold at the exhibit, but it should acquaint interested people with the newest developments in toys. It should also inspire people to buy constructive toys for children as they grow, not merely something for every Dec. 25th. The exhibit will be sponsored by Toy Guidance Council, Inc.

* * *

Fire Losses Higher. Losses from fire reached an all-time high in February, better than $64-million dollars, so says W. F. Mallalieu, general manager of the National Board of Fire Underwriters. This loss is appalling. It is wasteful, and much of it could be prevented. Statistics show that carelessness, accumulated waste materials and failure to check up and correct faulty wiring are the principal causes of fire. Every day should be Fire Prevention Day instead of Fire Prevention Week once a year. It is good to have fire insurance, but it is better not to have to use it.

* * *

Fire Extinguisher. Soybeans are certainly a money crop. They have been used to make oil, food, plastics and countless other products. The latest is bean soup for fire prevention. Other materials are mixed in, and five fallons of this concentrate will produce 800 gallons of foam when sprayed on a fire with either fresh or salt water, according to Science Service. The foam hovers close to the fire smothering inflammable gases and keeping out oxygen. This was a war baby now made available to industry.

* * *

Designers Take Note. "Designers of furniture, fabrics, carpets, and ceramics are now turning out products that have no reference to

(Continued on page 10)

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the past," says T. H. Robsjohn-Gibbings, interior designer in a talk to the Decorators Club, as reported by the New York Times. Continuing, Mr. Gibbings said, "Designers have not kept faith with the American home ideal in attempting to force new materials and processes into old molds." Examples are, transparent plastic furniture in Chinese Chippendale design and prefab houses with Cape Cod or Colonial lines.

Young people today buy home furnishings for utility and ease of living. They want something modern in style, design and color, but it must be suited to present day needs. There is little choice when one must select the lesser of two evils.

* * *

A New Fabric. Another war baby to be changed into peacetime use by early summer will be "Gantron." Taking its radiant energy from ultraviolet rays, the basic color is far more brilliant in daylight than ordinary fabric and, in the half light of dusk, its show of color is greatly multiplied. Features of far greater significance for industry is that it is non-absorbent, hence dries almost instantly.

It is thought that production will be limited this year due to conversion headaches, production problems and shortages that are still with us.

* * *

Save The Land. Its a far cry from the factory back to the farm. But industry should be vitally interested in conservation of soil, for that is where food and raw materials come from. E. C. McArthur, president of the National Association of Soil Conservation District Governing Officials

made this startling statement: "At maximum high flood stages, the Mississippi River every few minutes carries past Vicksburg, Miss., the soil equivalent to a 40-acre farm." This soil can never be reclaimed. We can plant trees for future generations so long as we have land on which to plant them.

Lend your efforts and influence to your State Soil Conservation Association in the interests of future generations.

* * *

Modernizing Antiques. Reproductions of 18th Century furniture appearing at individual showings in some of the prominent stores have added drawers, slides, and push-pull attachments. This is as it should be. Gone are the days of the "brownstone" with its high ceilings, enormous rooms, and a myriad of closets, cubby holes and built-in chests and cupboards. Prewar houses seldom had sufficient storage space; postwar houses are even more skimpy in overall size, and especially in places to put things.

Out of all this, designers may develop a new style, somewhere between the lofty massive ornateness of the antique, and the low-slung stinted severity of the modern. But it will have to be built for young moderns living in today's houses. That means added drawers, slides and gadgets galore.

* * *

Take A Lesson From Cooking. Reading between the lines of a news item about a New England restaurant using a new type of stove should prove profitable for industry. This stove permits the customer to get his order right

(Continued on page 128)

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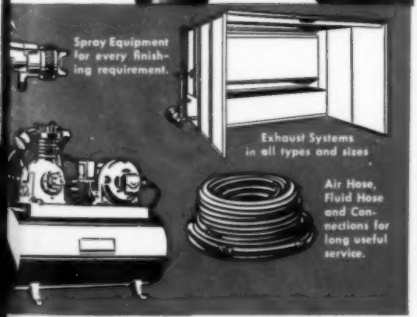
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DeVILBISS HINTS... on *Finer Finishing*

Hose Lines are the Life Lines of Your Finishing Department

Spraying operations depend upon air power. Your air compressor may be giving you efficient, cheap air power. But whether or not it reaches your spray gun at the proper pressure depends upon another factor—your air hose.

A spray gun apparently operating inefficiently may in reality be "starved for air". In selecting the air hose, remember that the inside hose diameter, like the length of the hose, resists the passage of air within it. The smaller the inside diameter and the longer the length of hose is, the more resistance to the flow of air is set up. Air pressure regulated at the transformer is considerably reduced by the time it reaches the spray gun.

Therefore, when setting pressure at the transformer for the atomization pressure you want *at the gun,* you must compensate for this loss. Consult an air pressure drop chart or use a gauge to learn your pressure drop from transformer to gun. Then always add this drop figure to the atomization pressure you want *at the gun,* and set this total pressure at the transformer.

Choose hose sizes carefully. Your air hose for use with production type spray guns, should not be smaller than ⅜" internal diameter. This size of air hose gives you the maximum of pressure with a minimum of weight and still retains desirable flexibility. One-quarter inch I. D. hose is often used but the pressure drop in this size hose is excessive. Excessive pressure drop influences the quality of results. Air hose to the pressure feed tank from the compressor or main line should be ⅝" I.D. to provide air for moving the material to the gun, air motor agitation, and atomization air when gun is hooked up to the tank.

Fluid hose sizes too are important. The size most generally used is ¼". This is the size to use with pressure material feed and the average type of finishing materials. It is light, flexible and has the necessary capacity. With small guns and light bodied materials a ⅜" hose may be used. The heavier materials may require a ½" hose. After having determined the correct size, then insist on using a hose with solvent-resisting liner. Fluid hose should be of special construction. It is not just any kind of hose. Solvents swell and disintegrate the liner of other hose and when this happens, clogging of spray gun will result.

Industrial design calls for a study of the product in terms of Form, Color and Texture in relationship to its use, the user and the environment, with consideration to performance, structure, material, manufacturing processes and effective distribution.

by Onnie Mankki

Industrial Designer

A secretarial desk designed to be finished in subtle tones of gray-green; the pedestals are slightly darker than the top and the pontoons (which touch the floor) are still darker. Notice the horizontal effect on top.

FINISH has always assumed a position of major importance in the mind of the industrial designer as he goes to work on a product, not only because it forms his principal media of expression but because it actually forms the intimate liaison between the consumer and the product. Finish is also a physical necessity for the protection of metal and other nondurable materials from the elements. It is the surface through which impressions are created to arouse an acquisitive desire among the large masses of potential purchasers.

The selection of finish is not a separate but an integral part of industrial design procedure; consequently the same considerations that determine the very form of the product also determine its color and texture in terms of finish. These considerations are embodied as generalities in the following definition:

Industrial Design is the application of creative imagination and sound discriminative judgment to the study of the product, in terms of form, color and texture, in relationship to use, the user and to the environment, with consideration to performance, structure, materials, manufacturing processes and distribution.

As such, industrial design involves an approach based on the integration of esthetics, engineer-

ing and economics. A detailed analysis of the problem brings up a myriad of minor factors each of which, in itself, could affect the sale of the product. In some cases the needs established, can be harmoniously organized into a neat and orderly pattern. In many cases however, we find that many of these factors oppose and contradict one another. In such cases the relative importance of these factors to one another are evaluated and a compromise is sought.

Creative Imagination; Discriminative Judgment

To begin with, the two factors named above represent two opposing influences that must be brought into proper balance in relation to the nature of the product. Certain products should be designed to excite and stimulate the senses. The approach of these should be based on giving rather free rein to the imaginative and creative impulses and restraining discriminative judgment.

One of the best examples resulting from this approach is in some of the more spectacular items of millinery. Products in this category either have a short life expectancy or have short and infrequent periods of contact with people, and they must register their impressions in this brief period. Other products should be designed to provide visual relief rather than stimulation. Their design approach is made by restraining imagination with discrimination, and utilizing principles of harmony rather than contrast.

These are the products we have to live with day in and day out. Most products now are somewhere between these two extremes. The degree of stimulation or repose in-

The full chroma vermillion of this streamlined coaster wagon will sharply contrast with any environment that can be anticipated. Junior will get a lot of fun showing off in this snappy number, with its shiny colorful finish.

volves not only a study of pure design but an integration of it with psychology.

The two products illustrated in this article—a child's coaster wagon and a secretarial desk — were chosen because they demonstrate the application of these principles. A vivid color scheme of bright vermillion contrasted by black and white decalcomania decorations was chosen for the wagon to provide visual stimulation. A color scheme of soft middle tone grey greens was chosen for the desk to introduce a note of restfulness into the environment and help reduce mental fatigue.

Form, Color and Texture; What They Mean in Design

When form, color and texture are manipulated simultaneously to create the proper degree of harmony or contrast their effect becomes cumulative. Subtle color contrasts can be effectively used to create a distinct expression to separate elements. This principle has been effectively used in automobile bodies and tops for years. In the desk, for instance, the pedestals were given a slightly darker shade of the same color to accomplish a similar effect. The pontoons were treated in a substantially darker color for the same purpose. All of this treatment by division of the vertical elements emphasizes the horizontal feeling of the top. This is logical expression for a desk whose basic function is to provide a substantial amount of horizontal work surface.

Highly reflective finishes are often used to give added emphasis to radii and contours. Although the pattern of highlights varies with the light source a form that has been geometrically well developed will continue to reveal its true contours regardless of light source.

This characteristic is apparent in most cromium plated products.

In the desk, textural contrasts were created by use of a linoleum top, a glossy organic finish for the sides and the pedestals, and a ribbed rubber for the pontoons. In the coaster wagon the polished aluminum handle and hub caps contrast with the organic coating for the remainder of the vehicle.

Use, the User, and the Environment of a Product

Relationship to use, to the user and to environment is the objective of form, color and texture manipulation. These relationships may be physical or they may be psychological. When these relationships are properly established in a product, the basic human needs, either conscious or subconscious, are met and the potential consumer's desire to acquire the product results.

The hard use that can be anticipated for the coaster wagon demands a finish with high impact and abrasion resistance. However the life span of this product is relatively short, and if

this can be exploited in terms of economy such a procedure is definitely in order.

The desk, on the other hand, would not be likely to receive such hard use but its life expectancy would be much greater. The drawer fronts should have a finish that will resist the effects of body perspiration. Although fingerprints can not be avoided on such surfaces, their presence may be camouflaged by using one of the novelty pattern finishes. The ribbed rubber on the pontoons effectively resists the destructive action of cleaning mops without showing the effects. Fine grain wrinkle finishes on the metal components reduce light reflections and resulting glare. The fine grain minimizes the maintenance problem resulting from dust absorption, a characteristic inherent in most wrinkle finishes.

Personality of Probable User; Where Product Will Be Used

The personality of the probable user in terms of the market sought, exerts an influence on the design of the product. Certain color schemes appeal to different age groups, sexes, etc. Junior would be fascinated by the full chroma color for his wagon, whereas his older sister would be much happier working at a desk with a more subtle color scheme.

The probable environment affects the choice of finish. The product should harmonize or contrast with its probable environment. Although this environment, not being under the control of the manufacturer, may vary considerably, decisions can be made on the basis of certain well known generalities. The full chroma vermillion of the coaster wagon will definitely contrast with any environment that can be anticipated. The soft restful grey greens of the desk will not create too great a contrast, even in the most extreme environment anticipated.

Consideration of perfomance, structure, materials, manufacturing processes and distribution, bridge the gap between the ethereal dreams emanating from one's imagination and the cold hard practical realities involved in the production and distribution picture.

Performance establishes the extent of utility of a product. A stable structure holds the components in their proper position with the minimum utilization of material. Materials are chosen on the basis of their physical properties, visual and tactile appeal, all in relation to cost.

Manufacturing processes are vicariously thought of as the tools of expression, replacing the drawing or modeling instruments generally used in design study.

Distribution brings up problems of packaging, shipping, wholesale selling, retail selling, display, merchandising, installation and service. All of these elements must be given consideration befitting their importance in the entire picture. They must be integrated into one tangible "end result" which is the product. A program based on these considerations, successfully carried out, will result in products with inherent sales appeal based on real and fundamental values. Finish plays a vital role in this program.

Editor's Note: Mr. Onnie Mankki is a member of the American Institute of Architects. He has been associated with industrial design for the past 14 years. Mr. Mankki is engaged in industrial design and architecture at 7113 Euclid Ave., Cleveland 3, Ohio.

Spraying Color on Parts of Plated Ornaments

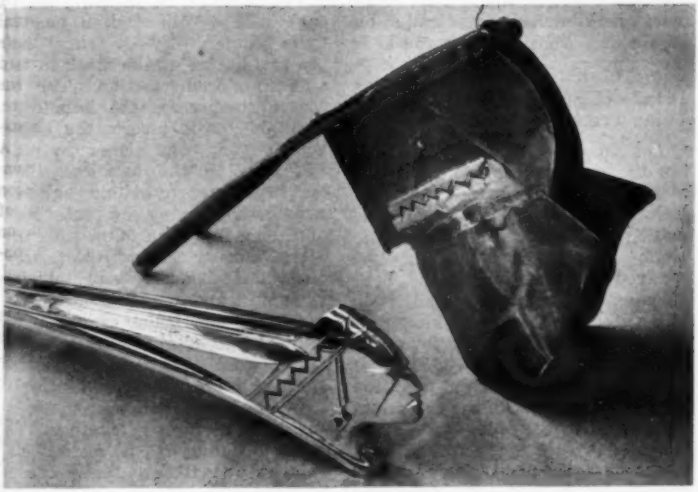

Fig. 1—Chromium plated casting for automobile hood—and the metal mask with openings through which colored enamel is sprayed on the zig zag line and in the sunken triangle at the end of the pendant.

MANUFACTURERS realize that they cannot depend upon their bright lustrous chromium plating alone for sales appeal. It is the right color applied in proper places to enhance the bright and shining surface that attracts prospective buyers. Deciding upon the right color and where it is to be applied are problems for the designer. How the color is to be applied economically to carry out specifications and produce the desired results is the responsibility of the finishers.

A typical example of color decoration may be found in the chromium plated Indian head (Fig. 1) in which depressed sawtooth lines, indicating the feathered headpiece, receive a black lacquer finish; and the sunken center of a small triangle at the end of the

By GEORGE HILFINGER

Superintendent of Hilfinger Co., custom finishers, **tells how the precision masks are used to guide sprayed colors into certain depressed areas of chromium plated ornaments.**

pendant is finished in bright red lacquer. The only means of accomplishing this economically in actual production is to spray the color through openings in a precision mask (also shown in Fig. 1). Of course, the Indian head must be finished identically on both sides, therefore the mask is the same on the other side too.

Details of Spraying Technique; Using Precision Metal Masks

The inside of the metal mask fits the contour of the chromium plated head and extends several inches back along the base. The mask fits so perfectly that the black and red lacquer may be sprayed consecutively on both sides without removal of the mask, and without subsequent wiping of the chrome finish to remove any overspray or fogging. This is made possible through precision fitting of the mask to the chromium plated casting, plus a small turned-down edge around all openings in the mask. This turned-down edge fits into the depressed lines, close to the edges, so that it not only shields the smooth polished chromium surface but also the side walls of the saw-tooth shaped grooves and the sunken triangle, allowing the color to be deposited only on the depressed areas.

The result of controlled color spraying may be seen to good advantage in the "Lincoln" name plate shown in Fig. 2. This band is chromium plated with sunken letters painted in red enamel.

The painting of sunken parts on each side of the Indian head is quite simple. Two springs hold the two halves of the mask in tension in closed position. The operator compresses the handles to open the mask, inserts the Indian head casting, and closes the mask by releasing the handles. Black lacquer is sprayed through the saw-tooth opening on both sides of the mask. Then follows a spray of red lacquer through the triangle on both sides. Air drying, wrapping and packing follow.

On this particular mask we use only 15-lbs. of air pressure at the spray gun. Working at normal speed, an operator can finish five to seven pieces with one mask before it requires cleaning. The spray openings in the mask, being relatively small, eventually become so filled with lacquer as to prevent full color deposit; then the mask is placed in a container filled with lacquer thinner; a second mask, identically constructed, is removed from the container, blown clean and dry with an air gun, and the work proceeds. One man finishes 150 pieces in an hour. (*To Page 49*)

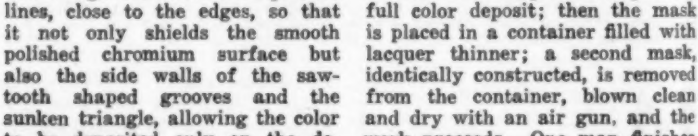

Fig.2—Recessed letters in this chromium plated bar are painted by spraying colored enamel through the openings of precision fitting masks.

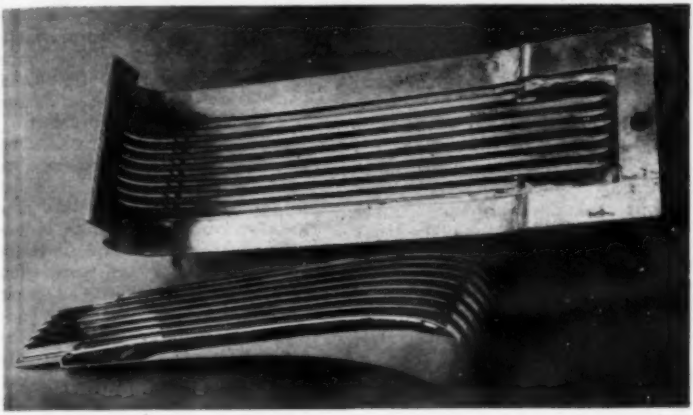

Fig. 3—Another chromium plated casting and the metal mask through which color is sprayed into the parallel grooves. Mask is shown in service in Fig. 4.

Another Example—A Different Hood Ornament in Chromium

The hood ornament shown in Fig. 3 is chromium plated and the base of its parallel lines is spray painted in red synthetic enamel. The weight of this mask is sufficient to hold it in place without the aid of springs.

Referring to the illustration marked Fig. 4, the workman in the foreground is spraying color through one of these masks. Because of the shape of the piece and the narrow parallel grooves, it is necessary to spray from both sides and on the rounded end, hence the work is mounted on a small turntable. Each of the narrow parallel strips in the all-metal mask has turned down edges which give the mask its close precision fit—to prevent enamel from contacting the side walls or face of the parallel lines on the chromium ornament. From six to eight ornaments can be painted before the mask requires cleaning. On this type of mask we can use an air pressure of 35-lbs. at the spray gun, due to type and size of apertures. Production averages 55 pieces an hour for each operator.

After being spray painted, the ornaments are placed on wire trays and put in a batch oven to bake at 150° F. for 15 minutes.

Cleaning Caked Deposits From Spray Masks

It is necessary to have two masks for each operator on each job—one to use while the other one is being cleaned. For cleaning these masks we generally use the solvent of the material being sprayed, but on some jobs where the apertures are rather large and cleaning of the mask is not required as often as in those with smaller openings, we have found that hot caustic soda removes the caked deposits from the mask much faster than the solvent. Upon removal from the caustic

tank, the mask is given a hot water rinse and is blown off clean with air.

These spraying masks are made of copper, hence it is highly essential to give the entire mask a heavy coat of nickel plating if it to be cleaned in a caustic solution; otherwise the chemical action of hot caustic soda on the copper surface would soon make the mask useless. Masks having intricate designs and small openings are never cleaned in a caustic tank, but in the solvent of the material being used.

Air Pressure for Spraying; Viscosity of Material

Air pressure plays an important part in successfully spraying color through masks. On very small intricate designs we use as little as 5-lbs. of air pressure at the spray gun, while on large opening masks the pressure is increased to as much as 45-lbs. We have found the 6-operator table, such as shown in Fig. 4, is quite practical. Air pressure regulators control each side so that different types of jobs can be finished on each side of the table. In the event that on some particular job one operator must use less air pressure than the other two, a small air hose regulator can be turned to reduce the air pressure. The portable turntables used at the work table also make for flexibility in spray painting.

Decorating these die castings is not especially difficult, but the viscosity of the material being sprayed must be just right; the masks must be cleaned at the proper time to insure full coverage of color where it is supposed to be applied; and the entire operation must be carefully and thoroughly performed. All of these castings are mounted on automo-

Fig. 4—Six people are spraying enamel through precision masks—to add bright enduring colors to certain areas on chromium plated ornaments for automobiles.

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biles in the most conspicuous places, where they will attract the most attention, therefore they must be as nearly perfect as possible. Generally they bear either the name of the car or an identifying emblem that is expected to endure for the life of the car on which they are used.

Fluorescent Reflectors

Latest addition to the Silv-A-King line of quality fluorescent lighting equipment is the "Vanguard," according to a recent announcement by the Bright Light Reflector Co., Bridgeport, Conn.

Modern in design and engineered to meet the most exacting demands, the "Vanguard" is of a modified "V" design with eggcrate louvres for maximum shielding of lamps and efficient lighting diffusion. The side glass panels of frosted ribbed glass are top-hinged to facilitate maintenance. Slotted end sections contribute light to eliminate dark ends. Precision-fitted canopy and stems are optional.

Hercules Synthetics Office in St. Louis

The establishment of a Hercules Powder Co. Synthetics Department sales office in St. Louis, Mo., with the company's Naval Stores Department office at 3615 Olive St., St. Louis 1, is announced. The Naval Stores office was formerly located at 611 Olive St. Jordan P. Snyder will be technical sales representative for the Synthetics Department in the St. Louis office which will operate as a sub-office under Paul Lefebvre, district manager in Chicago.

Roxalin Flexible Finishes Combined With Interchemical

Roxalin Flexible Finishes, Inc., and Interchemical Corp., announce that Roxalin's operations were integrated with Interchemical Corp., Finishes Division, on April 22, 1947. The resources of both, combined within the framework of Interchemical's Finishes Division, will provide users of Roxalin and Interchemical finishes with the technical skills and manufacturing facilities of both organizations.

Roxalin's production facilities and personnel will become an important adjunct to Interchemical's program of planned development and growth. In the finishes field few companies could contribute so substantially as Roxalin to the quality standards already established by other Interchemical Finishes Division components—Ault & Wiborg, Murphy and Scriver & Quinn.

Both Roxalin and Interchem Finishes' customers will continue to be served by the personnel familiar with their specific requirements, and brand names will largely be maintained. Such well-known Roxalin products as Blue Knight Flexible Lacquers, Paladin, Roxaprene, Rolox, and Rincontrol will be added to Interchemical's Polymerin, Vichrome, Polymeroid, Polytherm, Murphy Wood Finishes and special finishes for the metal decorating, electrical coatings, wood grain reproduction and other industrial fields.

Razzano Becomes Chief Chemist of Hilo Varnish Corp.

Dominick D. Razzano has been advanced to the position of Chief Chemist of the Hilo Varnish Corp. Research and Development Laboratories. Mr. Razzano has been with Hilo since 1934 when he started as a laboratory assistant.

During the war Razzano assisted Dr. Mattiello in solving research and development problems connected with

D. D. Razzano, now Chief Chemist for Hilo Varnish Corp. at Brooklyn, N. Y.

paints, varnishes and lacquers used on Quartermaster Corps equipment. He was commended for his work by Gen. Georges F. Doriot, Chief of the Research & Development Branch, Military Planning Division, Office of the Quartermaster General.

Razzano is a member of the American Chemical Society, the New York Paint & Varnish Production Club and serves on Committee D-1 of the American Society for Testing Materials.

*CHEMICALS to clean and prepare metal for painting

Sol-Klean . . . PHOSPHORIC ACID METAL CONDITIONERS

Prezaint . . . . MAKES PAINT STICK TO ZINC AND GALVANIZED

Industrosolv. SOLVENT EMULSIONS FOR SPRAY WASHING MACHINES

Phosmul . . . . SOLVENT EMULSIONS CONTAINING PHOSPHORIC ACID

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Sep-Cote . . . SPRAY BOOTH COATINGS

**Write for informative literature.*

SOL-KLEAN is used to prepare steel and aluminum for painting. Rust, oxides and oil are removed and corrosion producing agents are neutralized by it. Also, Sol-Klean etches the metal and gives it a thin phosphate coating.

For use one volume of Sol-Klean is diluted with 2 or 3 volumes of water. The resulting solution is usually brushed on the metal at room temperature. It adheres to the oily surface, penetrates the oil and mixes with it, and dissolves the rust. Then the Sol-Klean is removed together with the dissolved oil and rust by wiping with rags or flushing with water.

Metal may also be cleaned and treated by immersing it in hot Sol-Klean and rinsing it in water. Sol-Klean is non-inflammable and no noxious or corrosive fumes are evolved.

Sol-Klean is easy to use and can be made an integral part of your production line.

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CONVEYORIZED

Cleaning, Spraying and Inf

A smooth working conveyorized layout of equipment for cleaning, spray-painting and drying metal parts for space heaters.

By FRED M. BURT

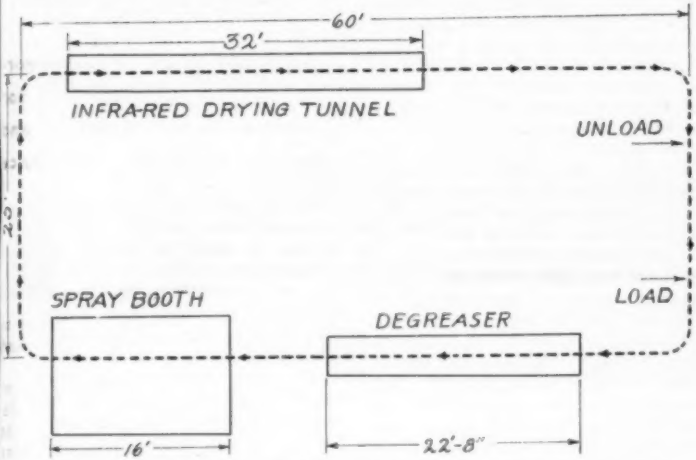
ONE OF the production lines in the plant of Hydro-Aire, Inc., Los Angeles, includes vapor degreasing, spray painting, and infra-red drying. It is a compact conveyorized unit that forms one simple loop. On thing that immediately impressed me while studying the layout and taking pictures is the fact that here is a complete finishing unit of rather large continuous production capacity, yet it occupies only a relatively small area. It is of a type and size that is adaptable to many production plants and job shops.

Equipment along this conveyor line is used to prepare and finish parts for Hy-Temp radiant electric space heaters, which receive Hammertone synthetic enamel finishes, principally in bronze, grey and light blue colors. It is designed to handle 3000 heater parts in each of two 8-hour shifts. The 16-hour production supplies what is needed to complete 1000 floor heaters and 1000 wall heaters.

Except for elevation changes at the entrance and exit of the degreaser, to permit dipping, the chain conveyor is positioned at an elevation of 7-ft. above the cement floor. It has a variable-speed drive (4-ft. to 12-ft. per minute) and is powered by a ½-hp. motor. In all operations illustrated in the accompanying pictures, the conveyor

Men at work in water wash spray booth where the overhead chain conveyor is moving from left to right—from the exit end of vapor degreaser at the left.

Infra-Red Drying LAYOUT



Plan of conveyorized setup for degreasing, spray painting and drying.

chain travels at the rate of 10-ft. per minute. In the 10-ft. loading zone the parts are hung on hooks which are spaced about 2-ft. apart along the chain.

Vapor Degreaser Cleans Metal Surfaces Automatically

Beyond the loading zone the conveyor line makes a 2-ft. radius turn, travels 10-ft. and then rises on a 45° slope to enter the vapor degreaser, curving down into this tank on a 2-ft. radius. In the degreasing tank, at the upper vapor level, a perimeter air chamber assists in the control of vapor at this upper level. Vapor baffles extend around the inside perimeter of the upper and lower freeboard area to deflect solvent vapors back into the degreasing chamber to minimize solvent loss.

The principle of vapor degreasing calls for heating chlorinated solvents until they become a vapor. Tubular electric immersion heaters are used. Automatic thermostatic electric switches control the vapor level and solvent temperature. The upper control regulates the vapor level. The lower control acts as a safety precaution against low solvent level or high oil contamination of solvent. When cold metal moves into the tank, hot vapors condense on the cold metal surfaces and create a flushing action which quickly and thoroughly removes all traces of oil and grease. The vapors penetrate and cleanse the tiniest crevices. An electric pressure pump provides power flushing of heavily soiled parts and can be used for emptying the degreaser pump.

(Continued on page 56)

Checking and Maintaining Effectiveness of Degreaser

When the cleaning solvent becomes too soiled for further use (as is easily determined by checking its specific gravity with a hydrometer) it can be distilled for re-use. The heating elements are turned off, the drain cock of the condensate trap is opened and all accumulated solvent is drained out. The clean-out door on the condensate trap is removed and any accumulated sludge is brushed out. Then this clean-out door is closed and solvent to be distilled is dumped into the solvent trap, after which the heating elements are turned on. The hot solvent becomes a vapor, condenses and drains back into a trap for draining into containers. After the distillation is completed, another clean-out is effected, with the heating elements being wire brushed to remove deposits. Then reclaimed solvent is replaced in the sump, heat is turned on and all operations proceed.

In background is entrance to vapor degreaser, where the conveyor line bends upward before entering, and then bends abruptly down before leveling out and moving along inside the enclosed space from right to left.

The hydrometer checking is carried out by using a Pyrex glass graduate about 12-in. high to collect a sample of the sump solution. The hydrometer is placed in the solution. When the reading approaches 1.35 on the perchlorethylene base solvent used, the solvent is becoming loaded with oil, and distillation is recommended.

Into Spray Booths for Hammered-Effect Finish

As the cleaned parts leave the degreaser, they are hot—about 250° F. The distance of travel to the first spray station allows them to cool to a proper temperature for spraying, although not down to room temperature, as the retention of a little heat is desirable.

The water wash spray booth is 16-ft. long, 7-ft. high and has a working depth of 6-ft. The face velocity of air across the working area is at a minimum of 150-ft. per minute. This movement of air is provided by two exhaust fans. The circulating pump has a capacity of 378-gallons per minute. The lighting is from overhead, with four 500-watt incandescent lamps, backed by porcelain enameled reflectors, shining through 22½x24-in. rough wire glass panels.

Spray guns for applying the Hammertone enamel are fed from a 30-gallon pressure tank under 18-lbs. air pressure. The air pressure at the spray guns is 70-lbs. Two operators spray this enamel on the work and a third sprayer applies a spatter coat of lacquer thinner, the "droplets" from which produce the "peen-face hammer marks" when they come in contact with the wet enamel. This thinner is fed by gravity from a container on top of the booth and is sprayed at a pressure of only about 8-lbs.

(Continued on page 58)

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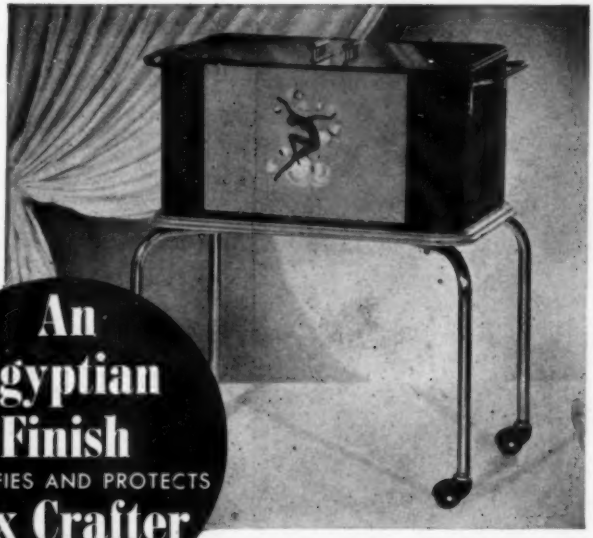
Leaving the spray booth, the conveyor line makes two turns and enters the infra-red drying tunnel. In the 3-minute travel through this 32-ft. tunnel, the parts pass between 250-watt infra-red lamps which are arranged in eight banks on each side, with 30 lamps per bank. These banks of lamps are wired with a "disconnect switch" on each panel, so that when the full heating capacity is not needed, it

A peek into the entrance of 32-ft. infra-red drying tunnel which has 480 lamps. Grilles for space heaters are going through and slowly rotating as they move along. Notice round vent holes in the sheet metal ceiling.



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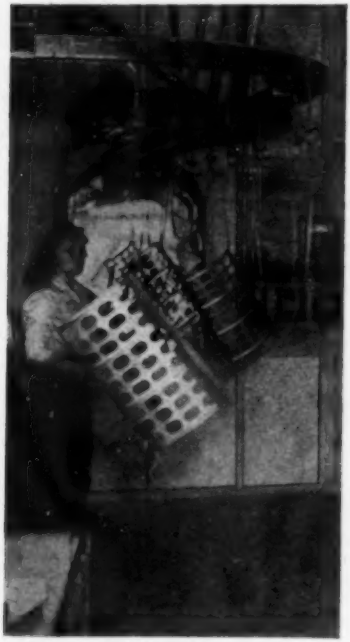


Exit end of infra-red drying tunnel.

can be reduced. On lighter gauge metals, as many as two banks on each side are cut out, thus saving 25% of the current used. With all 480 lamps turned on and with a current rate of about one cent per k.w.h., it costs around $1.20 per hour for electricity.

As the conveyor chain travels through the drying tunnel, a wheel above each hook engages a runner bar and this causes the parts to revolve slowly as they move through the drying tunnel. This rotation assures faster and more uniform drying.

Above the drying tunnel is a ceiling of perforated metal sheets through which fume-laden air is drawn into two exhaust hoods and discharged through vertical exhaust stacks. A motor-driven exhaust fan operates in each exhaust stack.

The capacity and velocities of vapor withdrawals, along with the diffusion effect of those perforated metal sheets in the tunnel ceiling has been calculated to properly exhaust the vapors that come from the drying enamels, but without pulling out more than a minimum amount of the heat generated.

Advancing out of the dryer, the finished parts travel a sufficient distance to become cool enough for comfortable handling before they reach the unloading zone.

After Finishing—Assembly and Careful Packaging

Close by the layout just described is another conveyor line for wall heater assemblies. It also has a variable-speed drive and serves about 25 work stations. Assembly work on this conveyor starts and ends at the end farthest from the spray room. A little farther on is a duplicate line used for floor heater assemblies.

Between the two assembly lines is a stitching machine on which cartons are made up. Prepared cartons are placed on a roller conveyor, filled with shredded paper packing and then packed with the floor heater assembly and additional parts.

The finishing line just described was designed, assembled, constructed and installed by Industrial Systems, Inc., of Los Angeles. As previously suggested, while this installation was specifically designed and built for the exact requirements of Hydro-Aire heater production, it has possibilities for being readily adapted to changed production plans in the future.

Better Spray Painting of Metal Products

BY C. RAYMOND SYER

Consulting Finishing & Industrial Engineer

IN A COMPETITIVE market where products that have sales and eye-appeal are required, surface treatments that are both attractive and durable are called for. Before the surfaces of parts and products can be successfully finished, several preliminary treatments are essential. These must accomplish the following objectives:

1) Remove all grease, dirt and foreign substance from the metal.

2) Produce a slight "tooth" or "etch" to all glassy smooth metal surfaces.

3) Establish a surface that will bond properly with the paint and provide enduring adhesion.

The study of color harmony as a sales factor, especially on office equipment, is to be considered today. Many present users of a black finish will realize this fact in the near future. It is being demonstrated that a piece of equipment finished in a quiet tone color finish, either in lacquer or synthetic enamel, has more sales and eye-appeal.

With the present use of aluminum and zinc die castings, plastics, and stamped pieces or parts formed by other methods, finishing costs can be appreciably reduced as compared with the finishing of cast iron parts. In finishing cast iron parts the preparatory work must include additional operations to produce a surface smooth enough to give the desired finish, with the application of a minimum amount of paint materials.

Aluminum and zinc die castings generally require some grinding or tumbling to remove parting fins and gate stubs. No paint material can be depended upon to cover defects in the basic metal com-

(Continued on page 66)

pletely, therefore some surface smoothing is usually necessary before paint is applied. In doing this as little metal as possible should be removed, in order to retain the dense surface skin, and the parts should be finished as cleanly as possible.

It is essential that the parts should be thoroughly cleaned of all grease, oil, dirt and foreign substance to obtain the desired adhesion of paint materials. Where production is large enough to warrant the use of a conveyorized degreasing system, this is generally the most economical method to use. However, where there is small production consisting of a wide variance in size and shape of parts, the vapor degreasing system serves very well. To obtain best results the following factors should be considered.

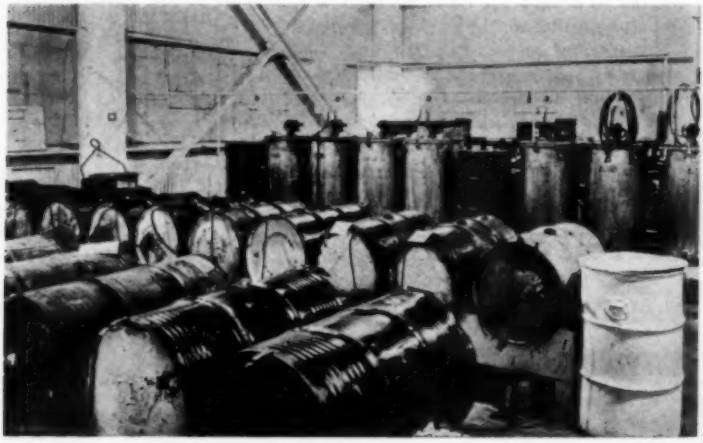
1) Correct design of baskets to hold small parts.

2) When loading parts in baskets, care should be exercised to make sure that all parts are correctly loaded in order that all surfaces of parts are accessible to the vapor.

3) Parts having concave surfaces should be loaded or arranged in such a position that the condensed vapor will drain properly. The speed with which vapor will cover and penetrate to all of the surfaces of each part will be determined, to a considerable extent, by the way in which they were loaded. Upward movement of the cleaning vapors will be retarded if parts are packed too closely together. It is important therefore that the positioning of the parts in the basket or rack be such that the vapor can penetrate to all surfaces for complete cleaning.

Storage and Preparation of All Paint Materials

It is imperative that paint materials be stored in a room wherein the temperature does not fall be-



All drums of material and the mixing tanks should be in a separate room.

PARKERIZING— standard finishing method for RUST CONTROL

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Parkerizing is a conversion method which changes the surface of iron, steel, and zinc to a water insoluble crystalline coating. Variations from original dimensions are at a minimum, and Parkerizing can therefore be used on fine screws and other products with close tolerances. Larger products—forgings, stampings, castings—may be treated in any size which can be immersed in the Parkerizing solution.

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PARKER PRODUCTS CONQUER RUST

low 70° F. Cold liquid materials will be high in viscosity and will require excessive thinner to reduce them to a working condition. Adding thinners to cold materials may cause separation of the resin and pigment. Paint left in unheated rooms or outside become quite viscous. Cold materials, thinned sufficiently to spray, will use extra thinner and will lack "body" when the thinner evaporates.

The quantity and type of thinner to be used is an important factor to be considered. It is a sound recommendation to use the type of thinner recommended by the paint manufacturer. Amount of thinner to be used will depend entirely upon the consistency required or suitable, according to the method of application.

Thorough Agitation of Paints Produces Best Results

Thorough agitating of materials to be used for spraying or dipping should be accomplished both before and after thinning in order to get good results. Mechanical agitators of various types are available and should be used in place of hand stirring. Most pigments are heavier than the liquids and have a tendency to settle. If this takes place changes will occur in the viscosity and general proportions of the ingredients in the finishing liquid. Pigmented materials will not stay perfectly mixed indefinitely; they require agitating from time to time when in use. Proper agitating of materials will preserve its original uniformity.

Incomplete agitation of pigmented materials may result in one or more of the following:

1) The thin liquid material will be on the top and the heavily pigmented material will be at the bottom of the tank or container.

2) Proper color or sheen cannot be obtained. The finish will either be too flat or it will show too much gloss.

3) Highlights will appear, showing a poor texture in the final finish.

4) Heavily pigmented materials will not produce a durable tough finish and this may cause a chalky film which will not adhere well to the surface.

5) Thin materials will have poor hiding power and will contain an excess of oil and resin, which may cause "lifting" when dried film is coated with enamel.

Any of the results just enumerated will obviously reflect against sales and eye appeal of the product. Reduced materials should be strained properly through cheese cloth or wire screen of such mesh or gauge as to remove all lumps, skins, etc.

Learn What Viscosity Is Best and Hold to It

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sales. Control is the basis of uniformity in any product, and this extends to uniformity of the finish on the product.

Controlled finishing, with its accompanying improvement in the quality of the finish and economies in material and labor, is practical for the small factories as well as for the larger plants. Every mixing room should be equipped for taking viscosity readings. For each type of material a viscosity point exists which is the best value for the purpose at hand. A temperature standard should be arranged for best application and for highest quality of the finish.

Viscosity is determined by noting the exact number of seconds required for a measured volume of material, at a given temperature, to pass through a small standardized opening centered in the bottom of the viscosity cup.

A material control should be set up to hold materials at their proper viscosities. These readings can be taken by the paint stock man, who should be instructed on how to take readings and why it is essential that certain viscosities must be maintained. This type of control will help to insure uninterrupted production schedules. It will prevent rough finish resulting from improper viscosities, and many rejects brought about by using materials either having too low or too high viscosities.

Viscosity cups and thermometers are procurable for metering the viscosity and temperature of finishing materials to be supplied to the spray operators and dipping operators.

Paint Circulating Systems Offer Desirable Features

Where 30 gallons or more of one kind of finishing materials are used per day, a paint circulating system is recommended, as it insures complete control of the issuance of material to spray operators. This method reduces material handling costs and will show an increase in production over other methods. It eliminates the tendency of spray operators to tamper with paint mixtures by adding thinner, which affects the color and sheen—and, where a wrinkle finish is used, the texture of the finish.

A paint circulating system provides the issuance of clean, fresh, uniformly mixed materials which are pumped through pipe lines to spray gun. Such a setup improves working conditions. Trucking of paint through the plant is elim-

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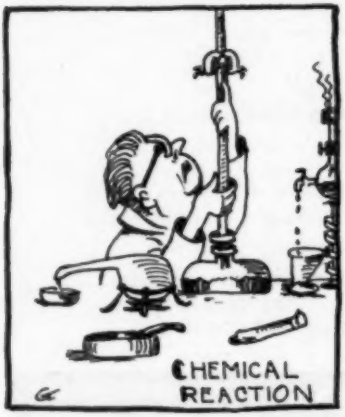
inated. Individual pressure tanks are not required to be refilled, cleaned and maintained. Cleaner conditions around spray booths can be noticed and, fire hazards are reduced. Material is supplied to spray operators at a uniform pressure, insuring even application and the proper thickness of coating.

Fluid flow, which is an important factor in getting a uniform finish, is controlled; the paint circulating system is a positive guard against being tampered with by spray operators. A fluid regulator key is supplied, but this is generally kept by the foreman or his assistant, so it is impossible for the operator to increase or decrease the flow of material to the spray gun, therefore a positive control of material delivery is constantly maintained.

Where the daily consumption of material is such that a circulating system is not justified, certain factors as to the issuance of material to sprayers, and air pressures, both at pressure tank and at spray gun, must be considered.



When standards have been determined which will produce the desired finish, they should not be altered by spray operators. Paint finishes should always be prepared by a control standardizing department in order to insure uniformity. Under no circumstances should these materials be thinned by the individual spray men. A uniform finish cannot be obtained if this condition is allowed to exist, as it does in many of the plants I have serviced.

Clean Air for Spraying; Correct Air Pressure

As previously stated, air pressures at the pressure tank and spray gun for material being used, should be established in accordance with what is needed to obtain the desired finish. The air pressures to be set up for use will depend upon the type of material to be sprayed. With air pressures closely controlled, much can be accomplished in producing a uniform finish, reducing rejects and saving material. It is important, however, that air lines are properly installed and that the correct size of pipe is used. All air lines should have sufficient elevation so that any moisture that collects in the line will drain back to the air tank where it can be drained off. All branch air lines should be taken off at the top of the line and then dropped down to the operator or machine where the air is used.

Air gauges attached to pressure tanks and transformers should be checked periodically for accuracy; they should be kept clear of paint, so that accurate readings can be taken. Moisture collects in the base of the transformer from which it can be drained by turning the drain cock. The trans-

hour saver...dollar maker

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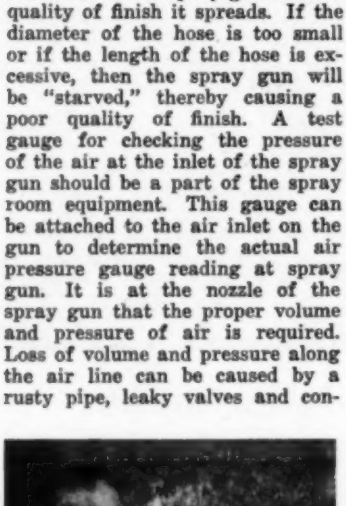
former should be drained daily, and more frequently if there is an unusual amount of moisture in the air.

Air Hose of Adequate Size; Pressure at Spray Gun

The correct diameter and length of hose are important factors, as this reflects upon the efficient performance of the spray gun and the quality of finish it spreads. If the diameter of the hose is too small or if the length of the hose is excessive, then the spray gun will be "starved," thereby causing a poor quality of finish. A test gauge for checking the pressure of the air at the inlet of the spray gun should be a part of the spray room equipment. This gauge can be attached to the air inlet on the gun to determine the actual air pressure gauge reading at spray gun. It is at the nozzle of the spray gun that the proper volume and pressure of air is required. Loss of volume and pressure along the air line can be caused by a rusty pipe, leaky valves and connections in the air line, old hose and worn or loose fitting hose connections.



Correct spraying technique is needed to produce smooth economical spray painting, which is what is wanted.

Spray Guns and Correct Spraying Technique

To acquire maximum efficiency and the highest quality of finish, the spray gun should be fitted with the proper air cap and nozzle combination.

Attention given to the following study and application of spraying technique will produce greater production and savings in material.

1) First of all the spray gun must be fitted with the proper fluid tip, needle and air cap for materials being used.

2) Spray operators must be informed about the correct air pressures to be maintained both at the pressure tank and the spray gun. Pressures to be used will vary according to type of material to be applied and the object being sprayed. This is essential to assure a good flow of material and a reduction in waste due to overspray. *(Continued on page 79)*

3) Spray operators should be acquainted with the working parts of the spray gun and the proper care to be taken in keeping equipment in clean shape to produce quality work. A clean gun does better work.

4) Study should be made to determine the most efficient method of spraying different types of parts.

5) Arcing of the gun should be avoided, as too much material will be applied at the center of the stroke and too little at the extreme ends. It also will cause waste of material due to overspray.

Holding and Operating Gun; Number of Strokes Needed

6) Operators should be instructed as to correct procedure in holding a spray gun. The correct procedure is to hold the gun at right angles to the surface being sprayed at all times. Most satisfactory results will be obtained when the spray gun is held 6 to 10-in. away from the surface. When the gun is held too close to the object being sprayed, too much material will be applied, causing heavy texture or runs. When the gun is held too far away, the result will be a dusty appearance.

7) Generally too little emphasis is directed to the triggering of the gun. The gun should be triggered at each end of the stroke. That is, begin the stroke, then pull the trigger. At the end of the stroke, release the trigger before the stroke is completed. To assure maximum ease in triggering a gun, the fluid adjusting screw on the spray gun should be left wide open, and necessary adjustments should be made at the pressure feed tank or at the fluid regulator. By adopting this procedure less material will be consumed and there will be a reduction in wear on the spray gun parts, such as tips and needles, as well as a decided improvement in the finish.

Every spray gun should be in good working order and should be fitted with the proper air cap and nozzle combination for the work at hand.

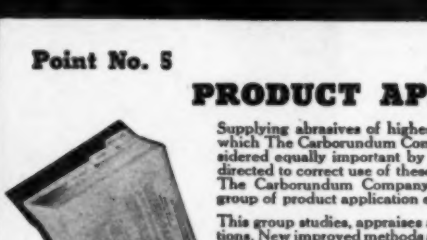
8) Atomizing pressure can be controlled by the use of the spreader adjustment valve. This adjustment permits a variation of spray pattern from round to extremely wide. A waste of material can be noticed when incorrect atomization is used.

9) The fewest number of strokes and the least amount of motion necessary to obtain the proper coverage should be determined. Many operators seem to think that by passing the gun over the object to be painted at a fast speed sev-

A BUYING GUIDE FOR ABRASIVES

Point No. 5

PRODUCT APPLICATION



Supplying abrasives of highest quality is but one way in which The Carborundum Company serves industry. Considered equally important by many users is the attention directed to correct use of these products. For this purpose The Carborundum Company has established a special group of product application engineers.

This group studies, appraises and charts abrasive applications. New improved methods and better abrasive products are often turned up. CARBORUNDUM engineers are also called in to help in selecting the best abrasives to use for specific jobs and in specifying their application. The end result is better grinding, sanding and finishing at lower overall cost...another reason pointed to in preferring abrasives by CARBORUNDUM. The Carborundum Company, Niagara Falls, New York.

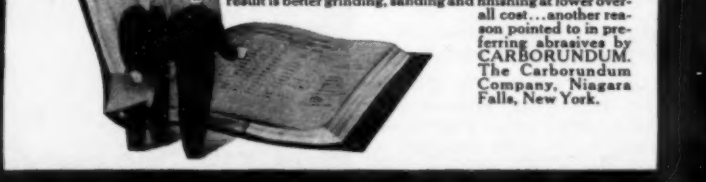
CARBORUNDUM

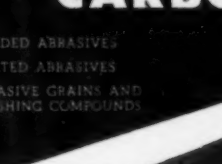
TRADE MARK

BONDED ABRASIVES

COATED ABRASIVES

ABRASIVE GRAINS AND FINISHING COMPOUNDS





Coated Abrasive for every

eral times, they are getting maximum production. A uniform speed, using the minimum number of strokes for proper coverage will increase production, will be less fatiguing to the operator, and will reduce waste of material. A good way to find out the number of strokes required is to count each stroke being made, and then experiment to see what fewer strokes will do. In many cases it will be found that where formerly as ten or more strokes were used, it is really possible to get the required coverage in 50% to 75% less strokes.

Insist on Cleanliness Around Spray Booth

Good housekeeping within and near spray booths will help to produce better finishes; it also improves working conditions and minimizes fire hazards.

Eye-appeal introduces sales appeal, and regardless of how much the finishing materials cost, if they are not properly applied, both eye-appeal and sales-appeal will be lost. The finish on any product constitutes a considerable portion of its eye appeal and sales appeal, and also provides necessary protection from the elements. It naturally follows, therefore, that the more carefully and efficiently the finish is applied, the greater will be the return in sales, satisfaction and service.

Despatch Oven Continues Present Policy

Following the loss of their late leader and fellow worker, H. L. Grapp, Mr. A. E. Grapp, Chairman of the Board, Despatch Oven Co., announces that the policy and program of the company will follow the course laid out by the deceased president.

Key men who have worked closely with H. L. Grapp through many decades have been selected for executive posts. According to Mr. A. E. Grapp, the appointment of these men to guide the company promises a continuation of the policies that have made the Despatch Oven Co. an important concern in its field. Mr. A. E. Grapp, the company founder,

G. M. Lund, 42, with Despatch, in various executive positions for nine years, is now president of the industrial firm.

has been closely associated with the policy formulation and direction of the company since he organized it in 1902. He will continue duty as active board chairman.

Closely associated with Mr. A. E. Grapp will be George M. Lund, the new President. Mr. Lund is well qualified to take over the responsibilities of his office after many years with the company as Comptroller, Vice President and assistant to the ex-President. Mr. Lund has the support of Mr. C. P. Doherty, Executive Vice President and General Manager who has had 28 years of experience with Despatch.

Other officers and directors appointed include G. L. Schuster, who takes over as Vice President-Treasurer and Chief Engineer; Fred Larson, Vice President-Secretary and Chief Electrical Engineer; Mrs. Ida S. Grapp, Director; John W. Watson, Vice President, who is in charge of the Chicago branch of the business.

Hercules Makes Chemicals Used in Finish Materials

A new Hercules Powder Co. plant for the manufacture of chemicals for the paint, varnish, lacquer, adhesives, and other industries, was officially opened recently in Burlington, N. J.

The first unit of the plant to be brought into production is manufacturing synthetic resins for protective coatings. Subsequently, units for the manufacture of liquid resins, rosin esters, and special alcohol, will be in operation. The plant is expected to be in full production late this summer.

AN UNSURPASSED TECHNICAL STAFF . . . MAJOR LABORATORY FACILITIES AND OVER 25 YEARS OF DEVELOPMENT WORK . . . ARE ENABLING THE RINSHED-MASON COMPANY TO MANUFACTURE SOME OF THE FINEST INDUSTRIAL FINISHES OBTAINABLE . . .

R-M lacquers, enamels and undercoats are specified by the leading manufacturers of farm implements, road equipment, refrigerators, stoves, office appliances, and countless other domestic and industrial units. Wrinkle, hammertone, spatter or conventional R-M finishes are unexcelled in durability and retention of color value.

R·M

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HOW WE *Specify* AND *Test* SAMPLE MATERIALS

by GEORGE CONRAD

WE MANUFACTURE refrigeration and air-conditioning equipment. As we develop new models we are constantly seeking greater protection and more attractive finishes for them. Inevitably a certain amount of experimenting must be done and we must discuss samples with our suppliers.

The first step is to acquaint the salesman with our exact requirements, together with every pertinent fact regarding its application. Nothing is too trivial to be overlooked. If he can carry back to his firm a complete picture of what we are trying to do, with an understanding of the way we will have to do it, he is more likely to supply us with the goods we want. We expect the salesman to be equally frank.

Many salesmen believe it unwise to discuss technical matters with a customer, but we

feel that such information is vital if we are to compile accurate performance data. In our business this is important. The amount of material requested should be sufficient to furnish all information necessary—no more, no less. I usually request that it be addressed directly to me so that there is no possibility of it becoming mislaid on arrival.

Although an instruction label will suffice, we prefer a follow-up letter describing the properties of the material and advising the procedure for its application. One important bit of information is the type of solvent required—whether one of the usual solvents, such as xylol, toluol, or naphtha will suffice or, if the manufacturer insists on one of his own blends, to be sure that some is sent with the sample.

First Thing We Do When New Material Arrives

The material and information pertaining to it having arrived, we are now ready to test it. Incidentally, I prefer to leave the material undisturbed in a warm place before opening it. This will lower the viscosity and accelerate settling of the solids. This gives us an idea of the need for agitation and of the labor required to prepare the material for use.

The conditions under which the material is tested should be an exact duplicate of the procedure used in actual production. For example, if you are using pressure tanks in production, do not spray the sample from a syphon gun. The results would not be the same. A small pressure tank with a very short fluid hose is handy for this purpose. By placing the material in an insert, unnecessary cleaning is avoided. Several spray gun manufacturers also make a pressure-feed cup which can be used with any spray gun, and the pressure on the material can be regulated. This is a very useful tool for handling small quantities.

Stir Material Thoroughly to Get Proper "Mix"

It should not be necessary to mention the need for thorough mixing but unfortunately, lackadaisical stirring is second only to improper cleaning as a source of finishing trouble. Stirring just cannot be overdone. Then solvent may be added according to the manufacturer's instructions, care being taken to measure the thinner accurately. So much for the material itself.

The panels or parts on which the sample is to be tried should be of the same material as that on which it will be used, if accepted for production. Also, these test panels should be prepared for spraying by the standardized cleaning method—no more, no less. The reason for mentioning this is because I once observed one of my men carefully sanding some test panels when our schedule does not include sanding. Obviously, the panels would have shown better adhesion than could be obtained in normal use.

Formerly, all parts of our products that required painting were made of cold-rolled sheet steel, or what is known as furniture steel. However, since the war ended, shortages of steel have forced us to fabricate many of these parts in aluminum. Consequently, any material accepted must be suitable for use on either metal.

Our Test Panels and How We Use Them

For testing purposes, I keep a small stock of panels of both steel and aluminum, cut to approximately 5x10-in. When needed, one steel

The twelve principal Pratt & Lambert executives have accumulated 405 years of paint, varnish and lacquer experience with the Company. There are some smart young people around, too!

PRATT & LAMBERT-INC.
Industrial Finishes
NEW YORK BUFFALO CHICAGO
FORT ERIE, ONT.

Using a conical mandrel to give coated sheet metal a bend test to test the flexibility and adhesion of paint and varnish coatings.

Photograph loaned to Industrial Finishing through courtesy of Standard Oil Co. (N. J.)

and two aluminum panels for each sample are taken from this stock and sent through our regular cleaning system. This consists, in our case, of an emulsion cleaner dip, cold water spray, and inhibited alkaline dip, and a hot water rinse. Steel is then Bonderized; aluminum gets a chromic acid solution dip.

All parts are force dried, following which the panels go to the priming booth where one-half of one side is primed. The purpose of this half primed and half not primed is to determine whether or not an undercoat is really needed. Thus prepared, the panels are coated with the sample material and cured, following the manufacturer's directions in every detail.

If the sample happens to be similar to materials in regular use and if the parts on which it would be regularly used are available, the spray gun is then given to one of the sprayers and he sprays a few pieces. If not, we have a few of our most complicated parts, very difficult to spray, which we keep for just this purpose. By having him spray these, we can see how the material performs in the hands of an average sprayer.

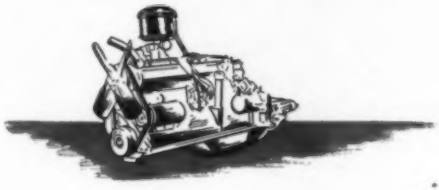
When they are finished and cured, these special pieces are examined for coverage and flow-out, and to detect runs and other faults. One is then returned to the oven and oven-baked, after which a comparison is made to determine the effect of temperature variation on color and gloss. These special pieces are later stripped and laid away until needed for another test.

What We Want Our Tests to Reveal

I will now explain the purpose of the three small test panels. The one of steel and one of the two aluminum sheets are subjected to a series of tests. Naturally, these tests will vary with each user's requirements and with the testing equipment available. Those qualities of major importance for refrigeration use are moisture resistance, ability to withstand extremes of temperature and abrasion resistance for external finishes. It goes without saying that excellent adhesion is a pre-requisite to obtaining these qualities.

After subjecting a part of the two panels to bending, impact, shearing and scratching tests, they

YOU CAN GET A LACQUER TO RESIST OIL...



BUT WILL IT FAIL WHEN THE HEAT IS ON?

nichrome Coatings offer you the ght Combination of properties r your product... every time!

o you finish machines or their acces-ries? Then you know the finish must be le to withstand both oil and heat—lots it. The *right combination* in many cases ay also require hardness, and resistance water, alcohol and gasoline. Unichrome oating B-124 is the finish that meets *all* those requirements—that's why machine builders specify it.

Whatever you finish, chances are there's a high quality Unichrome coating that's *exactly right* for your product. Why not find out about this one coating that will give your product longer surface life, and improve its "eye appeal" as well? Tell us the most important properties you require in a finish, and we'll send you full data on the Unichrome lacquer that fits. No obligation, of course.

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Products of UNITED CHROMIUM, INCORPORATED

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Using a Zuhr scratch hardness tester. This instrument is designed to gauge the hardness of dried paint and varnish films by measuring their resistance to marring and scratching.

Photograph loaned to Industrial Finishing through courtesy of Standard Oil Co. (N. J.)

are placed beneath the coil of one of our low temperature units in the laboratory. Here, the finish is alternately coated with ice at 20° below zero and subjected to dripping water during the defrost cycle, an atmosphere of high humidity being maintained. The test panels are examined regularly and notes are made of the finish deterioration.

Recording Results of Test for Reference

From beginning to end a complete record is made of every step in a book kept for this purpose. This includes the manufacturer's trade name and code numbers, all the data in the direction letter or label and every pertinent fact that developed in the course of our production testing. Finally, the remaining unmarred aluminum panel is labeled on the back and placed in a small filing cabinet as a permanent visual record of the material that was tried.

To those who think this procedure is too much trouble I can only say that nothing less would do justice, either to those who submit samples to us, or to our products.

Iridite Div'n. of Rheem Mfg. Co. Now "Allied Research Products"

The operating management of Rheem Research Products Inc., Iridite Division, has bought this division from Rheem Mfg. Co. and will operate as "Allied Research Products, Inc."

The exclusive right to manufacture and sell Iridite in this and foreign countries has likewise been arranged on a royalty basis with the Rheem Mfg. Co.

In addition to manufacturing and selling Iridite, operations will include the manufacturing and merchandising of a line of jewelry enameled copper giftware, known as "Ceramicraft." Also, a metal-finishing job-shop will be operated for electroplating zinc and cadmium; vitreous enameling, and painting.

The Allied Research Products Inc., (H. C. Irvin, President) is located at 4004 E. Monument St., Baltimore 5, Maryland.

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Gallon Reasons
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Practical notes on different ways to bleach natural colors from dark wood surfaces—to prepare them for modern light and medium blond finishes.

By RICHARD BLACKWELL

FOR MODERN light-colored finishes on furniture and store fixtures the wood itself must be light in color. Some woods, such as prima vera and avodire, are uniformly light in color and therefore require no bleaching. However, the beautiful figure in black walnut butt and stump veneers, and the matchless patterns that occur in mahogany may be desired in an all blond color. Also, it is not always practical or possible to select lumber or veneer of uniform light color —oak and maple for example. This is especially true in these days of scarcity in good quality lumber. In these cases it is necessary to use a chemical bleach to remove the natural color from the wood.

Apply Bleaching Solution Over Entire Area

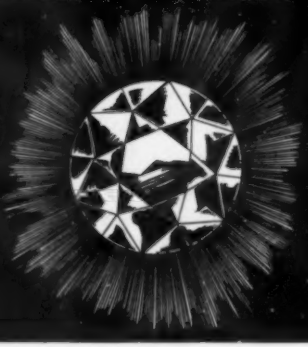
It is usually most practical to apply bleach over the entire area, even where it is only necessary to remove color from certain strips or areas. The bleach does not materially lighten the color of the lighter areas, but it does remove color from the darker areas and it greatly diminishes the color contrast. Local or spot bleaching may be resorted to if the darker areas are small, but even then the process may be troublesome and expensive.

Attempts have been made to bleach veneers before gluing them into panels. To be successful, the veneer must be bleached clear through so that subsequent belt-sanding will not expose darker unbleached areas under the surface. This requires much more drastic bleaching than is necessary when the surface is bleached just before finishing. For this reason it has not proved very practical or popular.

On Production Jobs, Use Commercial Bleaches

For production finishing of furniture, fixtures, etc., the commercially prepared bleaches are more

Improve QUALITY WITH



RED X Fusion Type FINISHES

Reliance's new Red X finishes add greater clarity of color, improve toughness, body and adhesion, and promote greater durability because all coats fuse together instead of lying on top of each other. There's no bleeding or fading, no swelling, shrinkage or turning gray in the pores. You, too, can improve quality by using Red X finishes and in addition, save both time and money.

Get the full story of Red X Fusion Type Finishes. Write to Reliance Varnish Company, Inc., 915 E. Kentucky Street, Louisville 4, Ky.

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satisfactory and economical than those the finisher prepares on the job. The most powerful and most generally satisfactory commercial bleach, according to many users, is the so-called 2-solution bleach. Two materials are supplied. Bleaching may be done in either of two ways.

By one method one solution is applied, followed in a few minutes by the other. The more generally used method is to mix the two solutions in definite proportions just prior to application. Only enough material for two or three hours' use should be mixed, because the mixture rapidly loses its effectiveness. If the bleaching action of the mixture is more powerful than necessary, it may be diluted with water. Unused material left overnight must be discarded.

Notes on the Technique of Successful Bleaching

The 2-solution bleach is applied by spraying, brushing, or dipping. Only glass, wood, earthenware, or enameled containers may be used, since contact with metal should be avoided. Stir only with a wooden paddle. If the bleaching solution is to be sprayed, a glass container on a suction-type gun can be used and the gun should be washed by spraying clean water through it immediately after use.

Apply a very wet coat. If it is brushed on, apply freely with a fiber brush. Some finishers swab it on with a soft cotton cloth or cotton waste. Operators who handle bleaching solutions should wear goggles, rubber gloves, and aprons; otherwise the materials may injure their skin and damage clothes. If it does splash on the skin or clothing, wash immediately with water and soap.

The bleaching action is completed in about an hour. If the wood is still not light enough, more bleach may be applied. Do not attempt to force-dry the wet surface until at least an hour after the bleaching solution has been applied; otherwise much of the effectiveness of the material may be lost.

After the bleached surface has air dried about an hour, the chemical residue should be sponged off with plain water. Since the residue from a 2-solution bleach is strongly alkaline, some finishers prefer to wash the bleached surface with a mildly acidic solution, such as three or four ounces of sodium bisulfite to a gallon of water.

Some finishers do not use an after-wash of any sort; they rely upon sanding to remove the surface chemicals. While this method is sometimes satisfactory, it is definitely risky because the chemicals may have a bad effect upon the stains or other materials that are applied later. It is much less risky if only a light application of bleaching solution has been applied. Also, a few 2-solution bleaches are made from chemicals that do not leave a residue. This eliminates the washing, but the bleaching material is not as effective as the other type. The user is advised to consult his supplier on the use of any bleaching material.

Wash Bleach Surface; Let It Dry; Then Sand It

The one-solution bleaches, supplied in powder form to be mixed with water for use, or in solution ready for use, are more convenient but generally not as powerful as the 2-solution materials. Some of these materials leave an acidic residue which should be sponged off with clear water or a dilute solution of ammonia or borax.

In any event, whether the residue is washed off or not, adequate drying time must be allowed for re-

(Continued on page 97)

moval of the moisture and oxygen or other bleaching gases. If the application is light, finishing may proceed after about six hours of air drying. Heavy applications require at least overnight (15 hours) air drying. If the final coats are all to be dried at room temperatures these drying times are usually satisfactory.

If the final coats are to be force-dried. then the bleach must be force-dried at least eight hours at 140° F., or air-dried 48 hours. This precaution is absolutely necessary to prevent blistering of the finish. Blistering over a bleached surface is nearly always caused by failure to neutralize or remove the residue, or by insufficient drying time. The trouble is more likely to occur over solid wood than over plywood, because in plywood the glue line serves to prevent deep penetration of the bleach and also serves as a vapor barrier. Heavy applications of bleach on plywood may cause lifting of the veneer unless water-resistant glues (urea or phenolic resin) have been used.

Wash Coat the Surface Before Filling

After the necessary drying time, the surface must be well sanded and the dust blown out of the pores with a dusting gun, or brushed out with a stiff-bristle brush. If the bleach has been applied lightly, care must be taken to avoid too much sanding or some of the unbleached darker areas may be exposed. Sanding dust from bleached surfaces may be irritating to the worker's nose and throat, especially if the surfaces have not been sponged off. If this trouble is encountered, respirators should be provided for those who do sanding.

To keep the color as light as possible after bleaching, the wood should be wash-coated before filling. Shellac or lacquer sealer may be used. A shellac wash coat can be prepared by adding one part of 4½-lb. cut shellac to five or six parts of alcohol. One part of lacquer sealer, at 15% to 18% solids, should be thinned with two parts of lacquer thinner to make a lacquer wash coat. Spray on a thin coat; let dry ½ hour and sand; then fill. Do not apply a heavy wash coat, or the filler will not stick in the pores.

Usually a natural blond or very light brown filler is used on bleached work. Sometimes a little stain is added to the wash coat to produce a more even tone. Subsequent coats of lacquer sealer and lacquer or varnish should be as nearly water-white and free of color as possible. Materials that discolor or "yellow" afterward with age should be avoided.

Emergency, Small Job, and Makeshift Bleaches

For those who have only a little bleaching to do or a quick emergency job, sometimes a satisfactory material may be prepared on the job. Some finishers use oxalic acid, which may be purchased in white crystalline form. It is useful where only mild bleaching action is required. The usual practice is to dissolve 12 to 16-oz. to a gallon of hot water, mixing it in an earthenware crock or enamel pail. It can be applied with a brush or cloth and then allowed to dry. Several applications may be necessary. Then sponge off with water or a solution of 3-oz. of borax per gallon of water.

When the treated surface is thoroughly dry, sand and finish. The sanding dust may be irritating unless the residue is neutralized with a borax solution, as indicated in the preceding paragraph. Oxalic

acid solution is most effective if applied to the wood while very hot (almost boiling).

Ordinary household laundry bleach will work on some woods. It can be mixed in the proportion of ½ pint to a gallon of water. Apply liberally; allow to dry. Repeat if necessary. Rinse off, dry and sand smooth with fine sandpaper.

Another bleach is sometimes made by mixing nine parts of sodium metasilicate crystals with one part sodium perborate (powder). These proportions are by weight. The mixture must be kept in a tightly closed tin can or glass jar. To use, add 1-lb. of the mixture to one gallon of hot water and stir until in solution. Apply in the same manner as the oxalic acid bleach just described.

Still another bleach is applied in two stages. The first solution consists of 1-oz. by weight of potassium permanganate in one gallon of water. Apply liberally. This will stain the wood purple or brown. Before it is dry apply a solution of 3-oz. by weight of sodium bisulfite in one gallon of water. A 5% solution of oxalic acid in water may be used in the place of the sodium bisulfite solution. The sodium bisulfite or oxalic acid solution will remove the purple stain and bleach out the wood lighter than it was before. After one hour sponge off, let dry, and sandpaper smooth.

Dark Mineral Streaks May Have to Be Painted Out

It should be realized that not all natural coloring matter in wood responds to bleaches. The mineral streaks in maple and some other woods are particularly difficult to remove. Some of them cannot be removed, but must be painted out by expert touch-up work with enamel of the right blond tint. Mahogany, walnut, and oak respond to most bleaches. Some bleaches are effective where others fail in any particular case. Also, oily and resinous woods, as a rule, do not respond well to chemical bleaches.

Cleveland Host to New Council of Federation

The first meeting of the Council of the Federation of Paint and Varnish Production Clubs will be held at the Cleveland Hotel, Cleveland, Ohio, on Saturday, June 14th.

A. C. Horn Co. Moves Its Chicago Offices

A. C. Horn Co., Inc., (Finishing Materials) Long Island City, N. Y., announces that its Chicago offices and warehouse are now located at the company's new building, 28 N. Racine Ave., Chicago 7, Ill. (Telephone, Monroe 7176).

Cowles Detergent Appoints Fulton as New York Man

The Cowles Detergent Co., Cleveland, Ohio, announces the appointment of Harold F. Fulton, better known as "Had" Fulton, as Cowles Technical Man in the New York State territory, to handle sales and service work for the Metal Cleaner Department. Mr. Fulton has had a wide experience in the metal working industries and is well qualified by education and plant experience to give valuable assistance to the industrial concerns in New York State.

"Had" Fulton now represents Cowles Detergent Co. in New York State.

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The big problem today is how to maintain quality and cut costs.

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The complete New Period line includes sealers, gloss, semi-gloss, clear and pigmented lacquers. They are formulated for various methods of application and for any production setup.

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NEW PERIOD Production Finishes

ESTABLISHED 1917

NEW YORK WOODFINISHERS' Supply Co.

109 IMLAY STREET BROOKLYN, N. Y.

Letters from Readers

Wanted: A Finish to Withstand Heat

We want a paint or synthetic lacquer for use on a machine section to withstand alternate cooling from room temperature up to 350° F.—one that is available in a series of attractive colors, such as sea-green, golden brown, and so on, in a ripple or hammered finish to cover up slightly uneven welding. It should resist hot edible oil which may drip and run down the sides of the treated parts. If you can recommend any suppliers, it will be appreciated. Also, tear sheets or copies of INDUSTRIAL FINISHING describing such finishes and their application.—W. L. Co.

In a letter we are submitting names of firms who, we believe, can probably supply what you want.—Ed.

Valuable Articles

We find your articles on "Infra-Red Drying of Paint Materials" and "Test to Predetermine the Performance of Furniture Finishes," in Volume XXIII No. 5 of INDUSTRIAL FINISHING most interesting. Should reprints of these articles be available, we will appreciate receiving copies of them at your convenience—J. A. (Technical Service Engineer).

No reprints are available.—Ed.

Flock Adhesive Wanted

One of our distributors in South Africa is purchasing flock in this country and desires a source of supply for an adhesive. The firm has requested that we order for them, to begin with, 15 drums. They would like to obtain this adhesive in various colors, similar to the flock that is being applied, so that where the surface is subjected to considerable wear, the color of the adhesive would not show any contrast. We are wondering if you can give us the names of three or four suppliers of adhesive for flock in color?—X. Co.

We are suggesting names of a few companies by letter. Perhaps others will write us when they see this inquiry.—Ed.

Interested in Flock

I would appreciate receiving a reprint or tear sheets of your article, "Flock Finishing in A Custom Shop" which appeared in March issue of INDUSTRIAL FINISHING Magazine.—J. K. (Product Designer).

In looking over March issue of INDUSTRIAL FINISHING, we note under "Letters from Readers" where you supplied some tear sheets from your January 1947 issue on airplane interior treatment with flock, which article began on page 78. If any more of these tear sheets are available, we would appreciate receiving two copies of same.—Kalamazoo Coaches, Inc. (Builders of Outstanding Motor Buses).

Tear sheets have been sent.—Ed.

Luminous Paint Samples

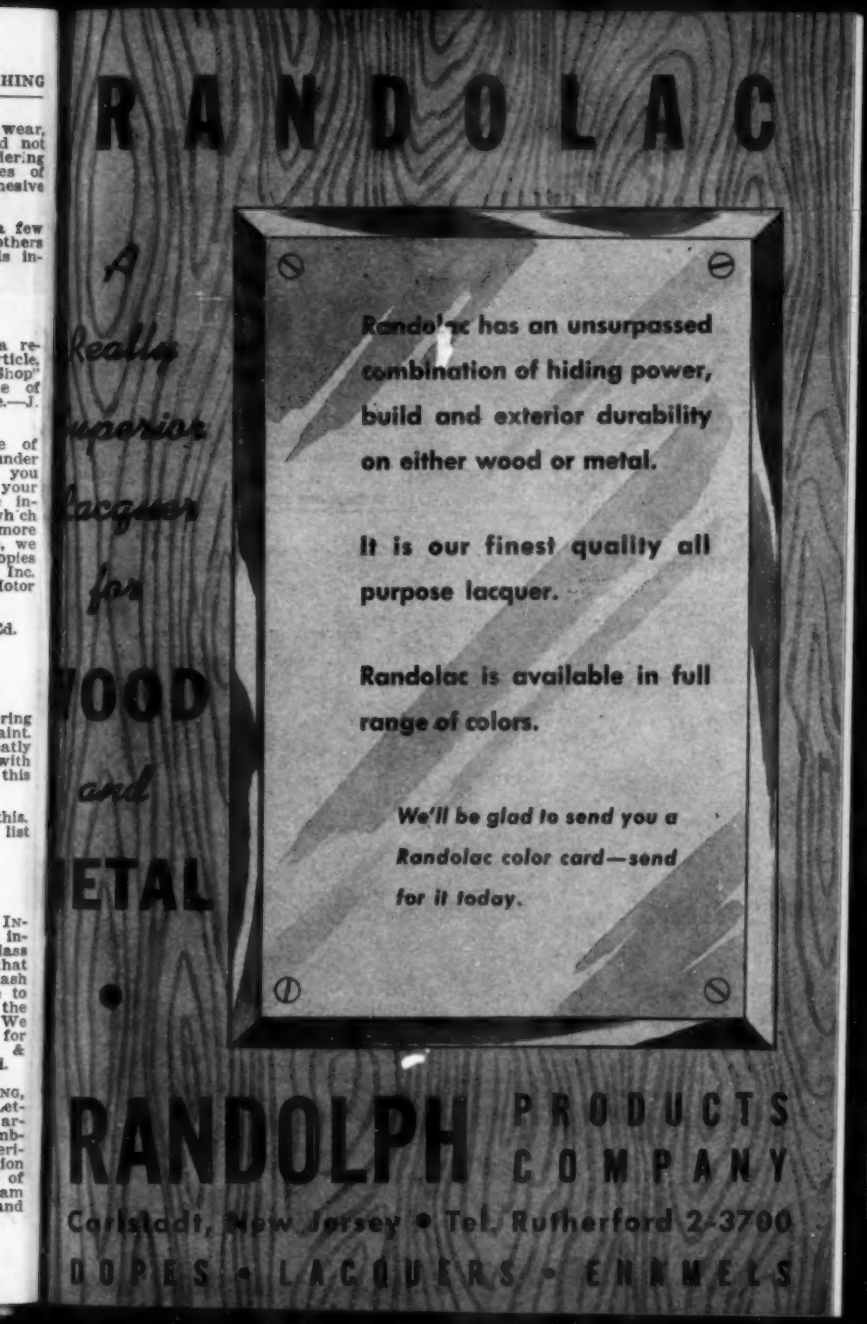
We are interested in securing sample quantities of luminous paint. Your cooperation would be greatly appreciated if you can supply us with a list of possible sources for this product.—N. Furn. Co.

Several concerns can supply this. In a letter we are sending you a list of them.—Ed.

Paint for Glass Tumblers

On page 96 of April issue of INDUSTRIAL FINISHING we notice an inquiry for a paint to be used on glass tumblers. In view of the fact that our Plastex Color Coat does not wash off or chip off and does not have to be baked, we recommend it as the answer to the problem of W. C. K. We will be glad to furnish samples for this purpose. — Steel Protection & Chemical Co., Inc., Mooresville, Ind.

In your April INDUSTRIAL FINISHING, on page 96 under the heading, "Letters From Readers," there is one article titled, "Paint for Glass Tumblers." I have had many years experience with different types of decoration on glass and feel that I may be of some help to this individual. I am enclosing my name and address and


RANDOLAC
A Really Superior Lacquer for WOOD and METAL
Randolac has an unsurpassed combination of hiding power, build and exterior durability on either wood or metal.
It is our finest quality all purpose lacquer.
Randolac is available in full range of colors.
We'll be glad to send you a Randolac color card—send for it today.
RANDOLPH PRODUCTS COMPANY
Carlstadt, New Jersey • Tel. Rutherford 2-3700
DOPES • LACQUERS • ENAMELS

if you wish, you may have this person write or contact me in some way, for the purpose of solving this problem.—Arthur A. DuBow, 2643 N. Spaulding Ave., Chicago 47, Ill.

We are sending you by letter, the full name and address of "W. C.K.".—Ed.

Coating Old Phonograph Records for Recutting

I am interested in learning how to spray old or used phonograph records so they can be re-cut. Someone mentioned cellulose and a nitrate in this connection. Can you give me any information as to materials and methods used and where such material can be obtained?—C. F. H.

We have no specific information on this subject at the present but, in a letter, we are suggesting names of concerns which may be able to supply you the material needed.—Ed.

Silk Screen Process Work

We would be interested in securing reprints of any fairly complete story of the silk screening process. It occurred to the writer that possibly you may have printed a series of articles, such as you have on other industrial coating operations, and that these might be available. If such is the case, we would certainly appreciate from one to a half dozen copies, and will be glad to reimburse you for them.—L. R. Co.

In a letter we are sending you tear sheets of an article published recently about Silk Screen Process work, but this is probably not the article you have in mind. Our supply of tear sheets and reprints of other articles are completely exhausted.

There has been a big demand for articles of this type. We have an excellent book on Silk Screen Work that sells for only $3.00. Perhaps you would like to get a copy of this book. —Ed.

Testing Laboratories

We are wondering if it would be possible for you to supply us with a list of testing laboratories located in the mid-west, who are in position to test such items as license plate enamel? Each year we submit samples of our license plate enamel to testing laboratories and would like, this year, to contact some new laboratories in this connection.—M. S. I.

Try Crystal Laboratories, 643 Virginia St., Crystal Lake, Ill., or Robt. W. Hunt Co., Chicago, Ill.—Ed.

Conditioning Aluminum for Painting

We are interested in materials for etching aluminum to prepare the surface for painting. Will you kindly, if you can, give us the names of some manufacturers who make materials for this purpose?—B. & T.

In a letter we are naming several concerns who can probably supply what you need.—Ed.

To Enamel Lots of Small Parts

We are interested in enameling very small parts in large quantities, by "tumbler enameling" or by "centrifugal enameling." Will you please let us know how we can get information about this?—N. F. Co.

We are sending you a reprint of an artical about tumbling, as published in INDUSTRIAL FINISHING. For information about centrifugal enameling, we suggest that you contact Ronci Machine Co., 2 Atlantic Blvd., Centredale 11, R. I.

Reclaiming Paint Sludge

Do you have available tear sheets from INDUSTRIAL FINISHING dealing with the subject of reclaiming paint sludge? I refer to articles such as the one on reclaiming zinc chromate primer which appeared in your magazine about two years ago. In the event tear sheets or reprints are not available I would like to know the date of any issues in which this subject has been discussed.—F. T.

Articles on this subject appeared in March, 1940; May, 1942; Oct., 1942; May, 1944; and Feb., 1945. No reprints are available.—Ed.

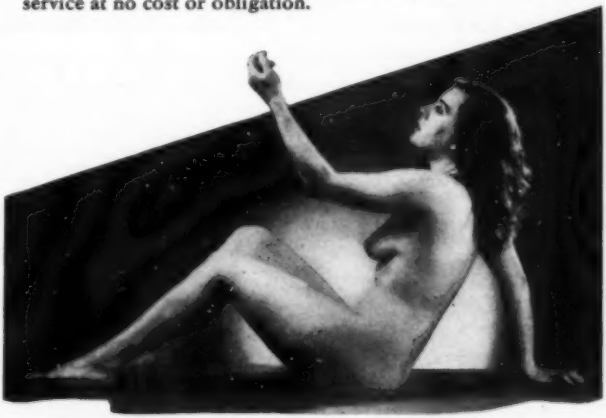
"Chemical Plating?"

I understand there is a paint concern in New Jersey that controls a process of applying a coating by a method described as "chemical plating." It seems this is a patented process and the concern licenses various operators to use it. It is not the usual electro-plating process, although the finished appearance is practically identical. As I understand it, a lacquer type coat is first applied by spraying, and this coat is then chemically plated by the spray method also. This is followed by a coat of a clear material involving the use of "shellacol."

This process is very much cheaper than electro-plating, but gives the

Eye-Appeal

Why is a specially-prepared finish like a photographer's model?
Simple: They both have eye-appeal.
. . . and speaking of special, appealing finishes, *that's* our business. The capable, experienced artists in our modernly-equipped Creative Studio leave no stone unturned in conceiving the coating which will prove to be most flattering to the fine lines and design of your product. They spend countless hours in research and development so as to provide you with a finish that has individualism . . . has the striking, eye-catching qualities necessary to motivate sales. Perhaps you are interested in giving your product a new lease on life. If so, send us your specifications plus a sample of your merchandise to be finished. Reputable firms may enjoy this "show-me" service at no cost or obligation.



No Tampering with Quality

Your inquiry will receive our prompt attention

ROCKFORD VARNISH *Company*
ROCKFORD ILLINOIS

Manufacturers of Protective and Decorative Coatings

same high quality finish. I wish to contact the manufacturer of this type of material and I will appreciate your sending me the name and address.—S. McC.

Will someone please tell us about this?—Ed.

Coatings for Bowling Pins

Referring to the item entitled, "Plastic Coating Offered for Bowling Pins," on page 100 of the March 1947 issue, we are writing these people as we also are interested in the coatings.

We would also appreciate it if you would give us the list of finish manufacturers who make coatings for bowling pins, as referred to in your note on page 96 of January 1947 issue.

Any other information you might be able to give us regarding the manufacture or finishing of bowling pins will also be appreciated, as we do not now make them but are considering getting into manufacturing them in the near future.—C. Mfg. Co.

Lasting Bar Top Finish

We have received numerous inquiries from our trade for a bar-top varnish to be alcohol proof. Our customers have used various varnishes in the past, and although they have been alcohol proof for three to four months, we desire a varnish finish that will last at least one year.

The varnish must be in brushing consistency. We also specify that the varnish dry in three or four hours. Can you refer us to any organization manufacturing a varnish of the kind we desire?—D. Co.

In a letter we are suggesting the names of a few concerns who may have what you want. We hope some more companies will write us, as a result of this inquiry.—Ed.

Can Supply Solid Coating for Screen Wire

We believe that we can assist the "S. Mfg. Co." who inquire about a solid film coating for screen wire, see page 92 of February 1947 issue. Would you be kind enough to include our name and address to them, as a potential supplier, or will you furnish us their name and address so that we may offer our services?

We would be pleased also to learn the name of "A. Corp." who inquire about a heat-resistant paint, and "C. & H." who inquire about a fire-resistant paint for wood. (The first two inquiries on page 100, of March 1947 issue.)—Plastic Coating Co., Los Angeles.

In a letter we are giving you the names and addresses of three concerns.—Ed.

Who Will Coat Cloth?

We would like to get in touch with some companies that coat cloth. We have the problem of applying a sizing material, and then a thermoplastic cement, to the back of velvet cloth, a small sample of which we are sending you. We believe that knife coating is probably the best way to apply these materials, with roller coating as a possibility. However, at the present time we have not the facilities for doing this work, and we would appreciate it if you could tell us of anyone who has experience in this line, especially some company not too far from Rochester, N. Y.—E. Co.

You might try D. & S. Processing Co., Inc., Clifton, N. J.—Ed.

Plastic Coating Butterflies

I am interested in manufacturing an item by coating a butterfly with plastic, but I am at a loss to know just how to go about it. I understand that there is a chemical used to coat the butterfly so that people can handle it without damage. I have been unable to find out what the chemical is. I thought that if I used this chemical I could dip or spray beautiful butterflies with clear plastic and make hair ornaments, etc., with them.

Could you give me any information as to the chemical and also the plastic I could use for this product?—C. C.

This is new to us and we have no information on it. We will refer it to some paint and lacquer chemists for their suggestions.—Ed.

Tumble Finishing Reprint

Some time ago you made available to us a copy of an article on tumble finishing by Mr. Fairburn. It was a reprint from his article which appeared in your magazine. We are wondering if it would be possible to secure about half a dozen copies of this particular reprint? If there is any charge, we will be very glad to pay it. We are getting a number of inquiries for information on this subject and would like to have these reprints to mail out on such occasions. —F. Co.

Reprints furnished.—Ed.

Remember Pearl Essence for

A Decorative Finish

MEARLMAID Pearl Essence is being used on hundreds of different products to produce a decorative and attractive effect.

Investigate the numerous advantages of a Mearlmaid Finish before you select the final coating. Its sales appeal and merchandising value are important.

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Has High Reflective Light Value

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WORLD'S LARGEST PRODUCER OF PEARL ESSENCE

Questions and Answers

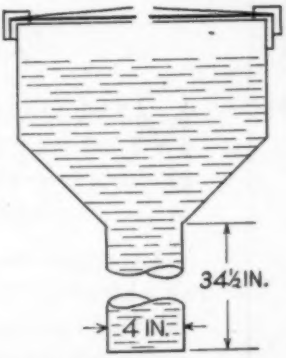
Coating Broom and Mop Handles

I am interested in dowel finishing (dowels which are used for broom and mop handles). I shall soon be required to adopt a method for lacquer finishing dowels and will appreciate any information I can get. Will you kindly send me the best available information you have on a speedy, economical, quality method of lacquering dowels?—R. R.

One of the most simple and efficient methods of finishing broom and mop handles is by dipping. Most broom handles, excepting the small hearth broom, are ⅞-in. in diameter and 42-in. long. After the broom straw has been assembled, stitched and cut, approximately 40-in. of the handle extends out from the wire that holds the straw in place. A paper label bearing the name of the manufacture, or some trade name is glued to the handle adjoining the wire. This leaves about 34½-in. of the handle which must be painted.

A simple dip tank can be made in any sheet metal shop, according to the accompanying drawing. The length of the tube, in this case, is 34½-in. long and 4-in. in diameter. However, these measurements can be changed to suit individual requirements.

The important thing about this tank is the hinged lid which has a 1-in. hole in its center. This lid is made in two sections, each of which is hinged and fitted with a double locking clamp to hold it firmly in place. Between these two metal lid sections is stretched a piece of sheet rubber having a ¾-in. hole; a piece of automobile inner tube will do. It is important that this piece of rubber remain stretched tightly during the dipping operation; that is to say, as the broom handle is inserted through the top section of the lid, and through the rubber squeegee, the rubber should not sag down into the lower section of the lid.



Cross-section of dipping tank; a round hole in rubber gasket at top is for use in dip-coating broom handles one at a time.

Dipping lacquer is placed in the tank to a depth of 34½-in., and the metal lids with rubber squeegee between them are clamped down. A broom handle is pressed

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DECORATIVE FINISHES BUILT-IN CABRETS
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REQUEST FREE WORKING SAMPLES

Rayon Processing Co. of R. I., Inc.

PIONEER PRODUCERS OF SURFACE COATING FLOCKS

55 Tremont Street **Central Falls, R. I.**

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W. H. HALL
182 Jarvis St.
Toronto, Ontario

through the hole in the top and on down into the tank to full depth, and then withdrawn. Brooms are suspended from racks until their handles are dry. At the start of the operation the first broom handle may have to be dipped several times until the squeegee becomes "lubricated" with the lacquer.

Naturally the dip tank must be supported in some convenient place and at a convenient working level. If there is too much lifting tendency when a dipped handle is withdrawn, the opening in the squeegee may be too small. This smooth round hole in the rubber gasket should be of suitable size to remove excess lacquer as the handle is withdrawn.

Approximately 100 hardwood handles can be dipped before it is necessary to add lacquer to the tank to maintain proper depth for covering. A separate tank should be used for each color of lacquer.—P. C. B.

"Putty" for Patching

In an article on "Patching Wood Surfaces to be Finished," published in this magazine several months ago, you told of drying "water putty" with a hot burn-in knife. We tried it on some of our "water putty" and it didn't work. Would like to have the names of some of the putties that will dry in this manner. Also name of filler using naphtha for a solvent.

Formerly we used lacquer sticks for patching but lately we haven't been able to get any that won't soften and swell under lacquer. I think we have tried them all.

We are using "wood dough" and "surfacing putty" but they take time to dry and it is difficult to make them match the finish. Any help in this matter will be appreciated.—G. P. W.

Most of the water putties with which I am familiar can be dried with a hot burn-in knife—but it must be done carefully. The burn-in knife must be held just over the surface, or the patched place can be lightly stroked with the hot knife. In order to avoid cracking or sticking you must take care to avoid heating the patch too rapidly. This is the secret of success.

I cannot, at the moment, give trade names of water putties because they are practically all sold as crack filler, and are put out by several companies that specialize in wood finishing materials. I suggest that you try crack fillers from some of the wood-finishing concerns that advertise in this magazine.

As to the filler in which naphtha is used as a solvent, I believe you are referring to ordinary paste wood fillers which are produced by a number of companies. Paste wood fillers can be used for patching or filling cracks. Do not thin them for this purpose, but apply them just as you would ordinary putty. They are slower in drying than water putties or crack fillers, but they do an excellent job.

Any lacquer patching stick will swell under heavy coats of lacquer. One way to avoid trouble is to apply the lacquer in thin coats over the patch, since it is the solvents that cause trouble. The solvents evaporate almost instantly from thin coats. A heavy lacquer coat will keep the solvents in contact with the patch for a longer time, and the patch will naturally absorb some of the solvents and swell. Three light coats of lacquer will

The chinchilla doesn't have to worry about the high cost of fur coats, but most of us aren't so lucky. Even if you can't afford to wrap your product in chinchilla, you *can* afford lacquer!

Because lacquer dries so fast, there's no need to figure expensive drying equipment into production costs. It's as beautiful as chinchilla, and durable as well. Your lacquer supplier would like to tell you about it in more detail.

Commercial Solvents Corporation
17 EAST 42ND STREET, NEW YORK 17, N. Y.

CSC makes solvents and plasticizers, but is not a lacquer manufacturer.

be less likely to cause trouble than one or two heavy coats. Why don't you use shellac sticks for patching? They are less likely to swell under lacquer, even under heavy coats.—RICHARD BLACKWELL.

Drying water putty with a hot burn-in knife would not be too successful, as only the top surface would dry at the time. The deeper part would still remain wet, and this could cause trouble after finishing. Try mixing your water putty to a heavy paste with water, and then reduce it to knifing consistency with alcohol. This mixture would dry faster, and should allow a knife to be used on it. If it were not thoroughly dry when finishing began it would not tend to cause as much trouble as when mixed with water. I assume that you are doing all of this patching on unfinished wood.

Any type of wood dough or surfacing putty must have a small amount of binder in its formulation, and, of course, that would retard the penetration of color.

The filler in which naphtha is used as a solvent, is perhaps a "knifing putty." It comes in either a lacquer or a varnish base. The usual colors are white, gray and black, but it could be made in any other color. Many firms in the finishing material business can supply it.—E. HOGSTROM.

Watson-Standard Plans New Plant at Neville Island

The Watson-Standard Co. announces plans for addition to its manufacturing facilities in Pittsburgh with a new modern plant to be located at Neville Island. Production in the new plant will be mostly of plastic finishes, a recent addition to the Watson-Standard line of technical coatings. The plant will greatly increase the company's production facilities.

Decals for Trucks

AS THOUSANDS of new trucks roll off production lines, fleet owners in increasing numbers are turning to decalcomania to speed needed vehicles into service without delay for hand-lettering and painting, it is reported by The Meyercord Co.

Colorful, sunfast, weather-tested trademarks and insignia can be easily applied as decal transfers to truck after truck in standardized form, without wasting a minute's hauling time, according to the firm. Lettering, product pictorials, slogans, interstate commerce data and public notices or danger signals can all be posted with decals in any size, colors or designs. Company advertising themes can be picked up from other media and repeated at a fraction of the cost of hand painting. Trucks become "mobile billboards."

Turpentine—A Paint Solvent and Thinner

Turpentine has long been used as a solvent and thinner in paint and varnish products. There are four kinds of turpentine. The four classifications are: Gum spirits, steam distilled wood, destructively distilled wood and sulphate turpentine.

Gum turpentine, or gum spirits, is obtained in this country from the long leaf pine forests of the southern states. Trees are slashed with a long knife and the oleoresin from these cuts is collected in containers. The crude gum is dumped into barrels and the barrels are hauled to a large copper still. Water is added to the oleo-resin in the still and then the still is heated. Turpentine is

FAMOUS HILO FINISHES

CLEAR WOOD LACQUER

For many years a maker of carpenter tools with a reputation for high quality has chosen Hilo Clear Wood Lacquer for finishing his wooden handles.

Tool handles are exposed to harsh conditions—extremes of outdoor heat and cold, perspiration from the hands, grit and dirt—but Hilo Clear Wood Lacquer stands up, protecting the wood beneath it for years of strenuous service.

Hilo Clear Wood Lacquer gives a smooth, hard, fully lustrous coating over beech, birch, maple and other close grained woods. It may be sprayed or dipped.

Send for a sample of Hilo Clear Wood Lacquer for test in your plant.

HILO

HILO VARNISH CORPORATION

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distilled off, together with steam formed from the water, leaving rosin in the still.

In the production of *steam-distilled wood turpentine*, pine wood is utilized. The turpentine is steam distilled from wood which has been ground into small pieces accessible by the steam. Steam distilled turpentine is used in paint and varnish products in the same way and for the same purposes as gum spirits.

In the making of *destructively distilled turpentine* pine stumps are heated dry, without the use of steam, and the turpentine is extracted.

Sulphate turpentine is extracted from the crude waste liquor of paper mills. It is the strongest of the turpentines in solvent power, but has a more pungent odor than the other turpentines.—N. P. V. & L. A.

Train Workers in Fire Protection

IN A SPEECH before a meeting of the Western Pennsylvania Safety Council at Pittsburgh Pa., P. W. Eberhardt, Vice-President of Walter Kidde & Co., Inc., fire protection engineers of Belleville, N. J., outlined a competitive training program similar to the method used for first-aid training by mines, telephone companies, and other industrial organizations.

"Team competition," Mr. Eberhardt said, "can promote real interest among employees in the plant and will do more than anything else to educate the workers in how to fight fire. When a winning team from one plant is matched against teams from other plants, the interest becomes even keener. Such matches in demonstrating fire-fighting ability can eventually be built into an annual nationwide fire safety contest."

Mr. Eberhardt shied away from statistics of the nation's mounting fire losses, claiming that many more fires occur each day than anyone realizes or statistics show. He stated that "we don't hear anything about 60% of the fires that occur in this country, and of the fires we do hear about, we don't know how at least a third of them even started."

Calling for better building construction to mitigate fire losses, Mr. Eberhardt pointed out that a serious problem concerns the many buildings which were constructed years ago that conformed to then existing fire codes but which are now outmoded. He asked for more general use of fire detection systems and the right quantity and kind of fire extinguishers to extinguish fires before they get out of control.

"Industry," Mr. Eberhardt said, "is about 50% protected with first-aid fire-fighting equipment. If we consider the general lack of ability and 'know how' of employees to operate available equipment, it's about 10% protected. And if we further consider the cases of poor maintenance of equipment, the percentage is even less. All the extinguishers in the world, if not properly used, won't put out a fire."

Wabash Products Co. Has New Personnel

Since the death of its president, Mr. G. N. Maxwell, in November 1946, and the retirement of its chief chemist, Mr. C. W. Simms, Wabash Products Co. (industrial finishes), Terre Haute, Ind., has made some changes in executive personnel.

Mrs. G. N. Maxwell is now Chairman of the Board and President, William Serban is Plant Manager and W. B. McCaw is Sales Manager.

One Lacquer, so clear it's invisible,

with multiple protection for . . .

Dulac Clear Universal Lacquer #462

● Here's an M&W finish that permits accurate retention of all desirable surface qualities of most metals . . . that adds lasting protection against heat, cold, weather, corrosion, stain and perspiration — Dulac Clear Universal Lacquer #462. It's formulated to give good adhesion with either the spray, dip or brush method. And it fits into fast production schedules because in five to ten minutes this successful general purpose lacquer dries out of dust . . . hardens in one hour. For complete information, write for Technical Data Bulletin 110 or let an M&W technical consultant discuss your requirements privately with you.

PIONEERS IN PROTECTION M&W Co. 1876

. . . where industry goes with finishing problems

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PRODUCERS OF LACQUERS, ENAMELS, SYNTHETICS AND SPECIALIZED PRODUCTION FINISHES

Materials Supplies Equipment

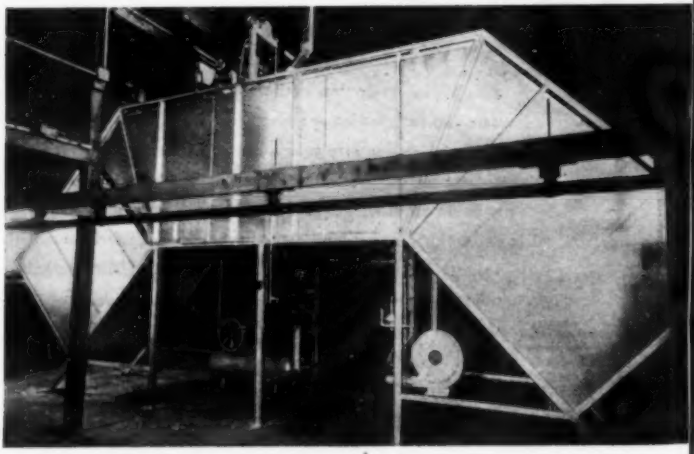
Burn-Off Rust-Proofing by Gas Infra-Red

Burdett Manufacturing Co., 3425 W. Madison St., Chicago 24, Ill., (manufacturer of Burdett infra-red gas-fired burners) announces infra-red burn-off ovens for cleaning and rust-proofing metal surfaces to be painted. The entire operation averages about five minutes.

The new Burdett burn-off rust-proofing process includes the proper placing of gas-fired infra-red burners in relation to the work, as determined by scientific standards. This process is claimed to not only remove grease and similar film, but at the same time it produces a blue surface on the metal that is extremely rust resistant. This blue surface can be best explained as a tight scale which reaches all hidden surfaces.

Sheets treated by this new process have been tested under severest weather conditions for as long as five weeks without showing the slightest indication of rust. Tests have also been run in acid atmosphere with identical results. Paint technician analysis is to the effect that paint adhesion is excellent.

Extensive research and tests indicate that the rust-proofing phase of the burn-off operation can be accomplished only by a radiant heat burner with proper coverage of the work.



Outside view of typical gas-fired infra-red burn-off oven for industry.

scientific analysis

Every STILLE-YOUNG product is put through three phases—
formulation—
scientific analysis—
practical finishing tests—
STILLE-YOUNG Lacquers, Sealers, Stains, Enamels, Fillers
can be adapted specifically to your
process, and will give you the results you want.
Let us help you.

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CHICAGO

LACQUERS • FILLERS • STAINS • ENAMELS • PAINTS

New Slide Chart Selects Correct Abrasive Paper

Sterling Tool Products Co., 265 E. Ohio St., Chicago 11, Ill., manufacturer of portable electric sanders, announces the availability of a comprehensive slide rule type abrasive selector which is the result of more than three years of research into the problem of proper abrasive selection for various sanding and finishing operations. This is the first time that a convenient graphic compilation of recommendations for the use of coated abrasives, rubbing and polishing agents has been offered to the finishing industries.

Selects sandpaper to use, according to work conditions and results wanted.

Plastic coated for durability and designed in three colors for quick accurate reading, the new selector indicates the proper abrasive combinations for 120 specific sanding and finishing problems.

The abrasive selector indicates: 1) The kind of abrasive for the job; 2) Abrasive grit sizes for various finishing operations on many types of material; 3) The type of coating (open, closed, waterproof, etc.); 4) Lubricant to be used, if any; 5) The proper pad to be used on the sander. Marginal notes contain information of value in specific applications. Sterling Abrasive Selectors will be available through authorized Sterling distributors at a nominal cost.

Protective Coating That Prevents Corrosion

P-5, a new anti-corrosive Co-Polymer finish, is a series of coatings for the protection of metal, wood and concrete against corrosion from exposure to moisture, acids, alkalies and many other disintegrating elements. It was developed for industrial use and placed on the market by the Industrial Division of The Watson-Standard Co., Pittsburgh 12, Pa.

The new finish is recommended for industrial use where protection against deterioration of surfaces is vital. It can be used on cement, metals or architectural surfaces with equal success. Wherever a non-corrosive fast-drying finish is needed in steel plants, chemical plants, food packing houses, dairies, breweries, etc., P-5 is applicable. Watson-Standard P-5 is available in nine colors.

In addition to its chemical re-

CLAREMONT *Flocks*

RAYON • COTTON • WOOL

Lead the League

with Top-scoring Color and Sales Appeal!

The Claremont Flocked finish of the "playing field" of this miniature baseball diamond scores a perfect triple play in product finishing . . . rich simulated fabric finish . . . speedy, economical application . . . long-wearing, abuse-resistant surface.

Claremont Flock finishes are top scorers in any league! For numerous industrial, electrical, novelty and general applications they offer countless product advantages. Available in brilliant colors and two-tone effects, Claremont Flocks create an air of luxury . . . stimulate sales . . . *reduce costs!*

There's a Claremont Flock in your finishing future! Samples and detailed information on uses and application techniques supplied upon request. Inquiries invited!

CREDIT
Pictured above is "Strike 3", a baseball game manufactured and flocked by Tone Products Corporation of America, 351 Fourth Ave., N. Y. 10, N. Y

●

FUNCTIONAL
Sound deadening . . Shock absorbing . . Non-mar, non-glare surface.

DECORATIVE
Simulates Velvet, Suede Leather, Mohair Velour, etc.

VERSATILE
Can be applied in fibres of various lengths and colors to almost any surface: metal, wood, cork, cloth, paper, leather, etc.

CLAREMONT WASTE MFG. CO.
CLAREMONT, NEW HAMPSHIRE
The Country's Largest Manufacturer of Flock

sistance, P-5 is free from objectionable paint odors, is non-toxic and dries by evaporation without requiring an oxidation period. It has good thermal stability, is highly resistant to abrasion and scrubbing and has good aging characteristics. P-5 does not oxidize or become brittle.

Proof of the high chemical resistance of P-5 coating comes from actual tests. Films of P-5, .0025-in. thick, were immersed in various reagents for six months. They were found to be unaffected when removed. Some of the reagents used in the tests were 3% acetic acid, 10% sulphuric acid, 10% hydrochloric acid, 10% nitric acid, 29% ammonium hydroxide and 10% sodium hydroxide.

Wyandotte Emlon for Cleaning Metals

A new solvent emulsion type detergent, Wyandotte Emlon, for use in the metal finishing industry has been announced by Dr. Roy Heath, Manager of the Industrial Department, Wyandotte Chemicals Corp., Wyandotte, Mich. This product is a unique combination of organic solvents and emulsifiers and lends itself to the formation of unusually stable emulsions, even in the presence of acids, alkalies and other electrolytes.

The experience of Wyandotte Service Engineers have shown this product to be exceptionally effective and economical in a wide variety of aplications—in power spray washers, pre-soak and still tanks, for cleaning prior to phosphatization, and as an adjunct to acid or alkali cleaners. In addition to many other uses where an emulsifiable solvent is desired Wyandotte Emlon is added to stamping and drawing compounds to facilitate their removal.

Wyandotte Emlon can be safely used on ferrous as well as non-ferrous surfaces. Its high-boiling and non-foaming characteristics provide longer cleaner life in addition to making it easy to use.

Vacuum Pickup Device New Abrasion-Testing Accessory

A new accessory, designed for use with the Taber Abraser in measuring the "wear mileage" of industrial finishes, has been developed by Taber Instrument Corp., 111-IF Goundry St., North Tonawanda, N. Y.

The Model 100-108 Vacuum Pickup Attachment rapidly removes abradings from the specimen undergoing a test for maximum resistance to normal abrasive wear.

A powerful 2-stage vacuum turbine unit, this attachment provides three principal operating features: 1) variable controllable suction to exact degree desired; 2) conveniently centralized electrical connections, and 3) adjustable rotative suction nozzle that is easily, quickly moved into and out of required operating positions.

Protective "Wash Primer" for Metal Surfaces

A new product, developed during the war by Bakelite Corp., in conjunction with the U. S. Navy Bureau of Ships, and now available through established paint and lacquer manufacturers, is known as "Wash Primer." It has the twofold purpose of serving as a metal surface conditioning agent to replace the conventional inhibitive wash coat, and secondly

The wrinkle that won a race against time . . .

This job was a real puzzler. A great number of small units had to be sprayed with a considerable time lag between the first and last. What was the hitch? Just this . . . all these parts had to be baked at one time and still have a uniform texture and design.

When finally the problem was put up to Duralac, it had all the earmarks of a lost cause.

Not for long, though. Duralac's specialized experience produced a solution as it has done time and again, tough task after tough task.

How about your own finishing problems? If they call for specialized know-how, just write . . . . .

SEA-LAC

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as a priming coat capable of giving temporary protection to the metal between the interval of metal preparation and paint application.

"Wash Primer" was developed simultaneously with anti-fouling paints when it was discovered that obtaining adhesion and preventing corrosion was as much a problem as the prevention of fouling. However, the coating has been applied to many other types of finishing and refinishing problems, with excellent results.

"Wash Primer" is a solution of vinylite resin, a vinyl butural resin in alcohol, pigmented with a relatively insoluble zinc chromate. Phosphoric acid is reacted with this solution to produce a complex material which serves as a chemical protective coating and also provides a satisfactory base for the entire paint system. An excellent bond between the "Wash Primer" and subsequent coats of paints, such as those based on certain vinyls, phenolic, alkyd resins or nitrocellulose, is obtained.

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E. C. Hyland Retires from P. P. G. Co.

A veteran of 48 years in the paint industry, Edward C. Hyland, director of commercial research, industrial finishes, for the Pittsburgh Plate Glass Co., has retired from active duty, according to H. E. Post, general sales manager, industrial finishes.

Mr. Hyland joined the firm in 1889 as an office boy at the Milwaukee paint plant. Promoted to manager of industrial sales in 1910, with headquarters at Milwaukee, he retained that position for 24 years, during which time he was instrumental in establishing the Industrial Finishes Sales Division.

In 1935, Mr. Hyland was transferred to the firm's general offices at Pittsburgh, Pa., where he served as assistant to the director of sales. Five years later, he was appointed director of commercial research-industrial finishes.

Ferro Enamel 4 New Directors

The appointment of four new directors to the board of Ferro Enamel Corp. was announced at the company's Annual Board Meeting held April 15th at Cleveland, Ohio.

New members include C. D. Clawson, Vice President in charge of Sales and Research; F. S. Markert, Vice President in charge of Manufacturing; W. B. Lawson, President, Treasurer and a Director of Ferro Chemical Corp. (a wholly owned subsidiary of the company) and G. W. Wallace, Comptroller and Assistant Secretary of the company.

Wyandotte Chemicals Representatives Hold Clinics

Representatives of the J. B. Ford Division of Wyandotte Chemicals Corp., recently attended Sales and Service Refresher Clinics. C. B. Robinson, Vice President in Charge of Sales, accompanied by home office executives, directed a program that covered product "stretching" uses of Wyandotte Products in the industrial and maintenance industries. Wyandotte Clinics were held in New York, Pittsburgh, Atlanta, Chicago, Kansas City, Indianapolis and Toronto. As a result nearly 200 representatives of the Ford Division of Wyandotte Chemicals have completed a thorough, 3-day refresher course covering their service methods and equipment. These "shirt sleeve" sessions help insure Wyandotte customers the most for their money from the service angle.

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Detroit Concern Offers Experimental Room

Newcomb-Detroit, 5701 Russell St., Detroit, Mich., has made available to product finishers an experimental room where spray painting and oven-baking of coatings can be tried out under various shop conditions. The experimental room has a floor space of about 50x75-ft. and a high ceiling. It is air conditioned and has excellent lighting.

Equipment in the room includes two water wash spray booths, each one of a different type, and two ovens each 6-ft. wide, 9-ft. high and 20-ft. long. Each oven has an overhead chain conveyor which can be set to operate at whatever speed is desired. One oven is an improved convection type and the other is heated with radiant type direct-fired gas burners. Control instruments and recording thermometers are on the control panel.

Engineering features incorporated in the oven design and construction result in lean controlled heat (any temperature between 100° and 500° F.) and rapid baking of whatever coatings the experimenter elects to use.

The company policy governing the use of the laboratory is simply to provide facilities for interested manufacturers to conduct their own tests. The Newcomb-Detroit Co. provid the laboratory equipment and an o erator to run it, and asks those us the equipment to furnish their ow parts and materials as well as suitab personnel from their own plants actually conduct the tests.

W. P. Fuller Co. Appoints Laboratory Managers

New managers of the South S Francisco and Los Angeles labora tories of W. P. Fuller & Co., (weste paint manufacturer) have been a pointed by Director of Product W. P. F. Brawner.

A. P. Pahl has been appoint manager of the company's Sout San Francisco laboratories. Former manager of the Los Angeles labora tory, Mr. Pahl has been with W. P Fuller & Co. since 1930.

Leonard Beltrami succeeds M Pahl as manager of the Los Angel laboratory. He has been with t company since 1927 and has been the Los Angeles laboratory staff f the past 10 years.

Walter D. Jones will continue a Technical Director and will act in a advisory capacity. Mr. Jones, wh has directed the Fuller laboratori for many years, has been with th firm since 1907.

View in experimental room where water wash spray booths appear at left and right; conveyorized ovens and instrument panels are in the background. Plenty of clear floor space is available where the conference table is shown.

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Bonderizing Book Free

An attractively printed and bound book of 44 pages 8½x11-in., which describes and illustrates important details about Bonderizing, is offered by Parker Rust Proof Co., 2177 E. Milwaukee, Detroit 11, Mich. Bonderizing is a well known treatment for metals, to preserve fine finishes by anchoring the paint, and retarding corrosion.

New information is presented on the Bonderizing process and its applications on steel, aluminum, zinc, and their alloys, on die castings, and on Bonderite as an aid in deep drawing of steel and aluminum.

The book is profusely illustrated, including pictures of test panels showing accelerated and weathering tests on various treated and untreated metals. Typical Bonderizing installations are shown, with discussions about the most efficient use for various types of production.

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CHICAGO 54

Booklets Catalogs Circulars

"A Miracle of Light"

"A Miracle of Light" is the title a new folder on fluorescent lam just issued by Lustra Corp. America, 40 W. 25th St., New Yo 10, N. Y. It describes the four class of Daylight, 3500° White, Soft-Whit and 4500° White Lustra fluorescen tubes respectively. Newest of the fou is the 4500° White Lustra tube com bining the blue-white of daylight wit the warmness and liveness of whit light.

Rare Figured Wood and Marble Reproductions

An entirely new field of interio decoration—using the luxurious ef fect of rare woods, marbles an leathers on walls and furniture—ha been pioneered for industrial de signers in the new permanent Meyer cord Sans-Arb exhibit of plasti veneers at the Amerian Furnitur Mart in Chicago.

The exhibit was planned and ex ecuted by a New York industrial de signer to suggest as many new use as possible for Meyercord's Sans-Arb Sans-Marb products, already feature nationally on furniture, radio cabinets chests and other products. Sans-Ar recreates the appearance, texture an color of rare woods. Sans-Marb pat

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Samples and other exhibit material ...n the Meyercord suite at the ...merican Furniture Mart demon-...trate the flexibility of Sans-Arb ...lastic veneer as an easy, single-...pplication beautifying finish on any ...mooth surface, large or small, curved ...r flat—including wood, plastic, metal ...r glass. Sans-Arb can be applied to ...etal stock sheets before they are ...rmed and drawn into finished prod-...cts—actually pre-decorating the sur-...face.

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A new booklet provides valuable ...ata on temporary or semi-permanent ...rust protection of ferrous parts or ...work with Oakite Special Protective ...Oil, following such operations as ...grinding, machining, pickling, tumb-...ling, sand blasting, brazing, etc. A ...copy of the booklet can be obtained ...by addressing Oakite Products, Inc., ...132F Thames St., New York 6, N. Y.

Bulletin on Metal Cleaning Machines

A 4-page illustrated bulletin, printed in two colors, shows several sizes and styles of Mabor machines for cleaning metal parts and products in preparation for painting. For a free copy, write Mabor Co., Inc., Walnut St., Rahway, N. J.

Surface Preparation of Ferrous Metals Before Painting

A special, phosphate-type conditioning treatment for removing light soils and preparing ferrous metal surfaces for painting is fully described in a 4-page Service Report issued by Oakite Products, Inc., 132F Thames St., New York 6, N. Y.

The service report describes this phosphatizing treatment, as supplied by Oakite Compound No. 36, a mildly acidic material, which has the ability to remove light oils, grease, shop dirt and light rust, while at the same time imparting a phosphate-coating on metal surfaces to assure improved paint adhesion and resistance to corrosion. Should painted metal surfaces become scraped or "gouged" down to the bare metal after treatment with Oakite Com-

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pound No. 36, rusting will be confined to the immediate exposed area. Spread of rust under paint finish, and failure or "breaking away" of protective paint film is thus avoided.

Other recommended uses for this material, as reported by the manufacturer are: 1) Pre-paint preparation of aluminum and galvanized sheet metal surfaces; 2) removing heat tarnish and brazing flux residues on copper alloys; 3) brightening steel and iron molds after alkaline cleaning.

Respirator Bulletin

Complete data on the new M. S. A. Air Line Respirators and auxiliary parts and equipment made by Mine Safety Appliances Co., are contained in a 4-page Bulletin No. CS-23.

M. S. A. Air Line Respirators are equipped with either the M. S. A. "Comfo" Cushion Facepiece or the M. S. A. "All-Vision" Facepiece, as desired. The "Comfo" Cushion Facepiece has a soft rolled edge which assures gas-tight fit on widely varying facial contours. A unique bridle strap provides comfortable, automatic adjustment across the nose.

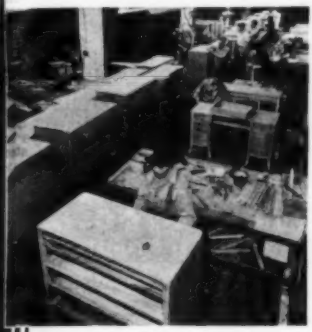
Bulletin No. CS-23 featuring these respirators may be had by writing the Mine Safety Appliances Co., Braddock, Thomas and Meade Sts., Pittsburgh 8, Penna.

Full Color Booklet on Color Is Free

How scientific use of the energy in color is currently employed in the nation's plants and factories to increase over-all efficiency is shown graphically in a new full-color, 32-page booklet now being published by the Pittsburgh Plate Glass Co., One Duquesne Way, Pittsburgh 22, Pa.

With facts and figures, plus numerous views of actual use of color in manufacturing and processing plants the booklet demonstrates how industrial officials, by following the Principles of Color Dynamics, can: 1) Promote continuity of employment; 2) Improve efficiency of operation; and 3) Maintain quality of production. It reveals how dynamic color will bring about more and better work per man-hour and more man-hours per man by making the employee's working environment cheerful and safe.

In a special section the booklet outlines the scientific facts about color. "The medical profession," it states, "has long realized that colors can be used to stimulate or depress. Some colors help people relax and be cheer-



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Next the types of conveyors are selected which most satisfactorily take care of each operation, and the various lines synchronized to assure continuous mass production. The know-how gained through 42 years' experience is your assurance of satisfaction from any P-B designed conveyor.

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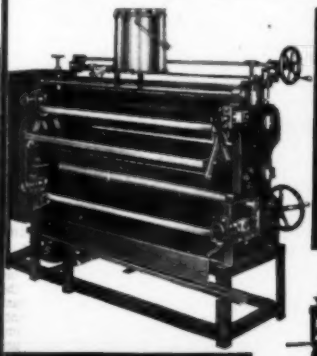

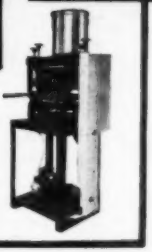

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ful. Others stimulate and invigorate them. Still others set up irritation and actual physical discomfort."

Color principles have been widely tested in both laboratory and in all types of plants. These tests and experience prove that there is energy in color which affects the health, comfort, morale, and safety of employees.

Individual sections are devoted to the use of color on machinery and equipment; on walls and ceilings; and on floors, aisles, and mobile equipment with emphasis on color for safety. Each section is illustrated with full-color applications. A special section contains simplified and practical material specifications for industrial painting.

Flock Finishing Booklet by Behr-Manning

Just released by Behr-Manning, Troy, N. Y., manufacturers of cut-to-length rayon flock, is a new 10-page booklet on Flock and Flock Finishing. Page size is 8½x11-in.. Included are 24 color sample swatches.

The new booklet describes the adhesives, methods of applying adhesives and flock on various surfaces, outlines the company's engineering service and lists the numerous decorative and functional uses for flock.

Behr-Manning flock, described in the booklet, is the result of over ten years of research in the manufacture and coating of flock in the company's Electro-Textile Division. The product, a precision cut-to-length rayon flock, is free-flowing and covers readily to yield a dense, uniform, velvet-like finish of unusually fine decorative and functional properties.

This attractive and valuable booklet is free to present or prospective flock users. Write to Behr-Manning, Troy, N. Y.

Random Comment on the Industrial Scene

(Continued from page 11)

now. Hamburgers with onions on a bun—time 20-seconds; hot dog on a bun—time 10-seconds.

The heat unit employs a magnetron tube, the mainspring of radar sets. Now this is unimportant in itself, unless you are either extremely hungry or pushed for time. The important thing is that it can be done. The same quick heat required to cook hamburgers and hot dogs will, by simple arithmetic, heat all of the things industry uses. This stove is not a dream blueprint; it's in use now.

Competitive Selling. It's been a long time since the word selling has had any real meaning. Conditions are changing. When the cycle is completed, there will be no place in the picture for the "order taker." The man who goes out to sell must have definite technical knowledge of the product, its possibilities, its limitations, and an understanding of the customer's requirements. So vital is the need for sales training on a specialized basis that Purdue University offers a course in selling to engineering students. There was a time when the engineers efforts were confined to research, or production, or erection, but today selling must be added.

* * *

Aluminum for Air Ducts. Architects, engineers and designers of heating, ventilating and air-conditioning systems enthusiastically endorse aluminum for air ducts because of its several important merits. Sheet metal shops find aluminum an excellent material from the standpoint of fabrication and erection economies. Owners like it because of the pleasing appearance of the sheet and the smooth, uniform seams it makes.

Aluminum ducts are usually left unpainted. The original bright finish gradually changes to a soft, silvery surface that is exceptionally attractive. Home owners like aluminum ducts because they enhance the appearance of the basement. This matter of appearance is one of the factors that accounts for the greatly increased demand for aluminum ducts in homes.

* * *

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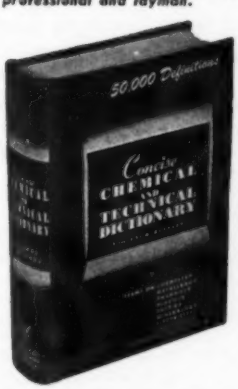

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cies and decisions," William L. Batt, president of SKF Industries, Inc., told the Purchasing Agents Association of Eastern New York at a dinner recently.

"Management has learned the hard way that public approval must be as vigilantly pursued as a prospective customer. It is beginning to learn that public approval is gained only through continued confidence and trust in management's actions.

"Today, as never before, enlightened and dynamic management has an opportunity to win, by intelligent business planning, the confidence of labor, the investor and the public," he asserted.

"Serving as the trustee of each of these interests, it can do more than any of them alone to assure a sound industrial democracy," he said.

* * *

Correct Lighting. There is more to correct lighting in industrial plants than meets the eye. At a recent meeting of experts headed by C. L. O'Shea, illuminating engineer with the General Electric Co., several pertinent facts were brought out. Colors in fabrics may fade more quickly under fluorescent lights than under incandescent lights, due to higher intensity of light by the former. There are four different colors of fluorescent light available. If your work is with colors, for instance in a finishing room or on finish repair, great care should be used to select the most suitable light for the job. Replacement tubes should be selected with equal care. Careful study of color distortion under fluorescents should be made under actual working conditions, and definite light requirements should be established both as to type and intensity.

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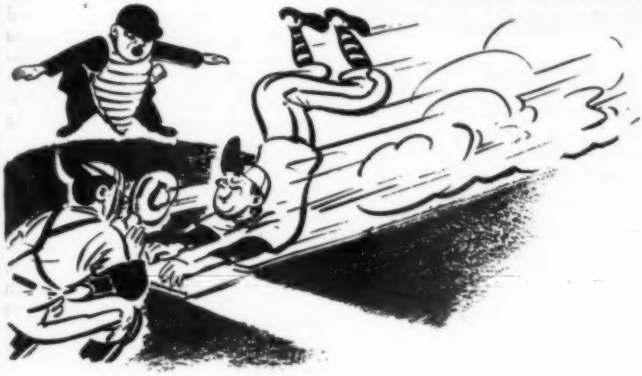

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Editorial

Finding Better Ways to Finish Products

Where are the fountains of practical information, plus advanced ideas and suggestions on how to finish products for greater durability and more attractiveness —at less cost and in less time? Usually in industrial areas where finishing is being done on a highly competitive basis and in considerable volume. Such localities attract concerns and individuals who have something better to offer in the way of materials, equipment, engineering service, supplies and accessories. As a result of this concentration of knowledge, alertness and aggressiveness on the part of so many individuals and companies, more new things are developed, offered and accepted for thorough try-outs.

More companies that develop new or better things for product finishers are also providing facilities for actual demonstrations which can be made under various shop conditions. This is a great convenience and time-saver for prospective buyers. It gives them an excellent opportunity to see what the new offering will do—without disturbing their own production lines. When samples of a firm's own product can be sent to an experimental room, cleaned, coated, and the coating baked under various specified conditions, under direction of the firm's own personnel, there is provided convincing evidence of what results can be accomplished with any proposed set-up that may be under consideration.

Working along these lines, the important personnel of more concerns are becoming increasingly conscious of what goes on in their finishing departments. They are beginning to realize the practical need for such things as properly conditioned clean air in a finishing room, a suitable balance between outgoing and incoming air, good lighting, safety practices; savings in materials, labor, supplies, power and time; reduction in or elimination of rejects; and numerous other factors of more or

less importance. With more manufacturing personnel becoming finish conscious, more quality finished products are sure to be made available to the buying public.

To Solve Finishing Troubles Quickly

★ Most paint concerns maintain servicemen who are efficient and capable, and whose services are free. For some reason, a number of users of finishing materials do not avail themselves of this service, but continue to try different materials and methods without getting the results they want, and very often they condemn the material.

The paint salesman seldom has the practical experience and knowledge of these servicemen in regard to preparation of surfaces and the application of finishing materials. Often he isn't even admitted to the finishing room, but must get the picture from the purchasing agent, which may not always be exact.

Unless paint concerns know just what is wanted and the conditions under which their product is to be used, it is almost impossible for them to supply a satisfactory material. For example, a concern using a black baking enamel that should bake at 400° F. for one hour, claimed the enamel would not bake hard. They had built their oven and it would not allow over

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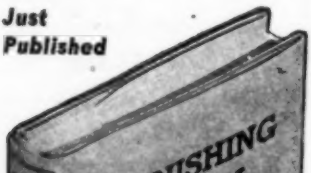

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200° F. of heat without blowing the door open. This condition was due to the fact that the oven did not have floor ventilation and, since the fumes from baking enamel descend, this was the cause of their trouble.

Another concern using a black lacquer that sagged, was using a home-made spray outfit that would not develop more than 40-lbs. of air pressure. The material they were spraying required 55-lbs of pressure. It was necessary to buy a modern spray outfit from a concern that knew how to build one. This firm had put up with this trouble and expense for two years before they called in a serviceman.

Another concern, using lacquer, had to accept an orange-peel effect caused by the foreman not using the proper thinner.

I have in mind a case where the iron filler would not dry hard. The foreman had an open 5-gallon container of naphtha that he was using to thin out the material. The machinists washed their hands in this same naphtha, but the foreman thought that "oil was oil" and that this practice would not affect the drying of the iron filler which was being thinned with the contaminated naphtha.

Some concerns depend too much on the purchasing agent to know all about the intimate conditions of shop and product, and the application of all finishing materials. It would save much expense and trouble if a competent serviceman were called in, allowed to go through the paint department and get the exact picture. In that way I am sure that paint concerns could make and supply finishing materials that would be entirely satisfactory in every respect.—GEO. MACDOUGALL.

Make the Informed Salesman Welcome

★ Recently I had lunch with a friend who is a salesman of industrial finishing materials. While parking his car he pointed out a manufacturing concern nearby and remarked, "I have never been able to get an interview there; in fact, they seem to have a hostile attitude toward salesmen. A girl takes my card, disappears and returns with the statement that they have no need of anything."

Although I do not know anyone in that particular organization, I have seen their product. Believe me, if they could not use my friend's excellent materials, they could certainly use some of his technical advice. Salesmen agree that, to a certain extent, this attitude is the rule rather than the exception. Many companies make it extremely difficult for a salesman to contact the proper person. Often, interviews must be limited to purchasing agents, many of whom know little or nothing about problems in the finishing room. Narrower still is the attitude that once a source of material is accepted, any discussion with another source is a waste of time.

Fortunate indeed is the purchaser of finishing materials and supplies who doesn't need to look for new or better paints, cleaning materials and other needs of the finishing room. His bugs are all ironed out and his job has become the mere re-ordering of tried and proved materials from a few dependable suppliers.

It is unfortunate, however, that so many, having achieved this enviable position, find no time for

★ Guest Editorial

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the salesman who is not on their list. With the wise buyer, a well informed representative of every the humblest house is always welcome. The time spent with him is never wasted. Nowhere is this more true than in the finishing industry today. You can never tell when some salesman may prove to be your life-saver; he may have what you want when all other sources fail.

However, this is not the most important aspect of salesmen's value. They are also an encyclopedia of priceless information. By the very nature of their calling they cover the entire industrial finishing field. They have access to countless places where the same troubles and headaches as yours and mine are being met and solved in various ways. Many a tough production problem has been solved through a salesman's tip.—GEORGE CONRAD.

How Unsafe Practices Resulted in Fire

★ Recently a member of the maintenance crew of a certain factory was welding a support which had come loose from a conveyor track in a finishing department. The department had been forced to close down for the few minutes while he was repairing the track. In his haste at welding he allowed a spark from his torch to fall into an open bucket of lacquer thinner nearby, causing the thinner to ignite.

One of the employees of the department—a man who was assisting the maintenance man in repairing the break—upon seeing the fire became panicky and, instead of using a chemical fire extinguisher hanging on the wall nearby, ran to

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the water spigot, drew out some water quickly and threw water on the fire. Naturally this caused the pail of flaming lacquer thinner to run over and thus spread the fire. Only quick thinking on the part of the foreman who grabbed a fire extinguisher and put out the flame saved that large factory from a disastrous fire.

Well, there were three hazards that contributed to the cause of this fire. First, unsafe practice on the part of the maintenance man. No welding or cutting with torches should have been started in a finishing room until the place where this work was to be done had been cleaned of all trash and inflammable materials; and all vapors should have been removed from the room.

Second, just think of an open container of lacquer reducer. The pail of lacquer thinner should have had a cover on it in the first place, as an open pail of inflammable material is always dangerous; and the thinner evaporates too. It should also have been moved away from the place where the welding was to be done.

Third, look at the workman who poured water on a chemical fire. This employee should have used the chemical fire extinguisher which would have instantly smothered the fire. The C. F. E. was nearby and easy to handle.

What was the real underlying cause of this accident? The answer: Employees who were not trained in safety practices. Had the maintenance man been trained to practice safety he would not have used a welding torch in an unsafe place. The safety trained finishing department employee wouldn't have left the open bucket of lacquer thinner standing there, and once the fire had started, if

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he had been trained properly, he would have used the proper fire extinguisher to put out the fire quickly.

Regardless of how much money the factory owner may spend to make his buildings and equipment modern, fireproof and safe, no finishing department is safe unless every employee is instructed and trained in observing safety and safe practices.

Most of the progressive manufacturers and factory owners of today are putting forth much effort to train their employees in all the rules of safety. Some of them are selecting key employees and training them; others are training their whole organization in the importance of safety.

Safety training is a profitable investment for both the factory owner and his employees. Carelessness and unsafe practices not only cost management a lot of money, but they can endanger employees, often causing injuries and loss of lives among them.—H. W. CHESTER.

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